

THE RELATIONSHIP OF BEHAVIORAL RESPONSES TO
SELECTED SWIMMING PERFORMANCE CLASSIFICATIONS

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ABSTRACT

Title of Thesis: The Relationship of Behavioral Responses
to Selected Swimming Performance Classi-
fications

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This study investigated relationships between behavioral responses on the Psychological Inventories for Competitive Swimmers to selected performance classifications at the 1977 Canadian Winter National Swimming Championships. The responses of 1976 male and female swimmers, aged 12 to 26 were obtained. At the conclusion of competition the responses were divided into four groups representing social behaviors, attitudinal behaviors, activity behaviors and motivational events. These responses were compared within several performance classifications, age and sex, years of participation in swimming, past performance rank that had been achieved, performance rank, and performance time at the national championships. Swimmers appeared to differ in their behavioral responses based on age, years of participation and the level of performance time improvement or non-improvement.

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Chapter 1

INTRODUCTION

Purpose of the Study

The purpose of this study was to relate the responses of swimmers on the Psychological Inventories for Competitive Swimmers to selected swimming performance classifications.

Significance

Traditional forms of personality assessment are particularly poor in their capacity for predicting behavior in specific environments. A lack of a theoretical basis for a relationship and various methodological problems have rendered attempts to relate personality test results to performance classifications as unsuccessful. An alternate methodology for predicting behavior has been developed (Rushall, 1975). These new tools predict behavior in specific sports with an accuracy of greater than 90 per cent. This study attempted to relate the responses on the Psychological Inventories for Competitive Swimmers incorporating the new technology to performance classifications of Canadian swimmers.

Another major deficiency in personality performance relationship studies has been the external validity of the studies. The common biased sample selection has produced results which have not been generalizable. This study

attempted to study a population. This population was all swimmers attending the 1977 Winter National Swimming Championships. Total population participation was impossible but a high level of participation was achieved. Consequently, the generalizability of the results obtained in this investigation should be greater than those usually obtained from similar forms of study.

Most previous assessments have been completed well after the performance level has been demonstrated. There is a strong possibility that factors have intervened during the time lag that might cause distortions in the relationships. This study attempted to measure both performance and test responses at the same time.

The relationship between psychological variables, more popularly termed personality, and performance has been a popular topic for practitioners. Relationships found in this study make clarifications of these popular statements possible.

This study introduced refinements in the methodology of this form of investigation and it has a potential to clarify some popular concepts. Revealed relationships between the inventory responses and performance classifications could be considered for predictions which would be a valuable asset to swimming coaches.

This study demonstrated significant methodological innovations which should advance research in this general area. There is a strong potential for it to contribute to the practical knowledge and procedures for the sport of swimming.

Delimitations

1. The period of data gathering consisted of five days, one day prior to the Winter National Swimming Championships, and the four days during the championships.
2. Performance categories were based upon the performances of performers registered at the national championships.
3. The athletes considered constituted a population. Every attempt was made to test every athlete. The athletes tested were considered to be representative of the population.

Limitations

1. The responses to the Psychological Inventories for Competitive Swimmers were indicative of the true behaviors of swimmers.

Definitions

1. Psychological Inventories for Competitive Swimmers
- the inventory is designed to measure behaviors in the sport of competitive swimming. The swimmers are asked to respond to specific statements about their behavior while in a swimming environment. The inventory includes information on the social, attitudinal, training, pre-competitive and competitive behaviors of the athletes. The utility of the inventory includes establishing individual coaching procedures, pre-screening athletes, increasing morale and motivation by minimizing conflict, selection, and co-ordinated control by

coaches.

The inventory was developed according to high standards of validity, reliability and objectivity. It is administered under standardized conditions and is constructed to minimize falsification or distortion of responses.

2. Canadian Winter National Swimming Championships - the championships are held each year by the Canadian Amateur Swimming Association to determine the rankings of qualified Canadian swimmers in each event contested. The winner of each event for men and women is declared the national champion for that event.

The winter national championships are held in a short course (25 metre) pool. They are generally held in March of each year. The championships also serve the purpose of being the culmination of the short course swimming season before competition transfers to long course (50 metre) pools for the summer season.

Some terms used in relation to the championships are:

- i) National Champion - winner of a final of an event at the National Championships.
- ii) National Medalist - first, second or third place finishers at the national championships.
- iii) National Finalist - finishers in the top eight of each event.
- iv) National Consolation Finalist - finishers from ninth to sixteenth in each event.
- v) National Qualifiers - those who meet the qual-

fyng time standard for the national competition.

- vi) Failed Swim - those who failed to achieve the entry qualifying time standard in the actual competition.

Chapter 2

REVIEW OF LITERATURE

Psychological Information of Importance

Personality of athletes has become a very important concern of sport psychologists. The method of determining what behaviors exist in various athletic environments has been the subject of much debate.

Until recently, the primary sources of information on personality in sports have employed the trait approach. The use of the trait approach has been criticized by researchers of personality in sport (Kroll, 1970; Martens, 1975; Rushall, 1973; Smith, 1970). The major concern was that the trait approach was not accurate in predicting behavior in specific environments. The hypothesis underlying trait theory researches was that certain traits could be identified in the personality of athletes. The traits would differentiate the superior athlete from the beginner and could perhaps even identify participants in different sports because of their different traits. As Rushall (1973) stated "convenience rather than theoretical conviction" may have dictated the use of the trait approach.

Social psychologists whose research interests do not directly relate to sport have been involved in a similar debate (Mischel, 1969; Hunt, 1965). The major tests and

questionnaires which utilize the trait approach have become popular with practitioners but their theoretical basis is subject to criticism. The major trait orientated sport model in recent years is the Athletic Motivation Inventory (Ogilvie and Tutko, 1970). It has been highly criticized by sport psychologists (Cratty, 1972; Kröll, 1970; Martens, 1975; Rushall, 1973).

An alternative method of examining personality has been an approach which is specific to the environment. Endler and Hunt (1969) indicated that a specific trait, anxiousness, could not be shown to indicate the same characteristics in different situations. As Rushall (1975) stated:

The need for discovering underlying needs, constructs, traits, dynamics, etc., would become mute, as their postulation would serve no purpose in a functional expression for predicting and accounting for behavior. (Rushall, 1974, p. 4)

An examination of behavior based only on situation or environment was also found to be theoretically unsound. (Endler and Hunt, 1969; Mischel, 1968). A combination of 1) response modes (behaviors), 2) individual differences, 3) situational differences, and 4) the interaction of these three factors was indicated by Endler and Hunt (1969) as being necessary for the adequate prediction of behavior. Sport psychologists had been proponents of this view as well. Rather than accept one theory of personality as totally valid in all areas a combination was recommended.

To predict behavior more successfully we must adopt the dyadic approach which considers the relationship between the individual's personality and the type of situation

in which he finds himself. (Martens, 1975, p. 151)

Several studies have also indicated that within specific environments, individuals often exhibit certain behaviors. If an environment requires the individual to have specific capacities and skills and if they have similar forms of motivation or incentive they will develop consistent behavioral repertoires (Wing and Wallach, 1971). The areas where behavior is consistent have been referred to as styles.

Wing and Wallach's assertions about specific styles in specific environments related primarily to the functioning of musicians, artists and performers in their environments. Sport situations usually provide a specific environment for the athlete as well. Thus, for a specific sport environment one should be able to assess the situational information and predict specific behaviors that might occur. A sport assessment format which relates to a specific environment is thus offered as an alternative approach to the trait approach for personality assessment.

An assessment which is specific to the environment must examine all the behaviors which might occur in that particular environment. Kroll (1970) indicated that specific sports require specific psychological capacities. It can also be presumed that different sports will indicate some different behavioral responses. Endler and Hunt (1969) identified some of the requirements of an environment specific inventory. The means of assessment should be able to describe situations and particular responses which are relevant to an environment. The assessment should also be able to separately

measure the various situations and responses that might be present. Questions used in an environment specific assessment form should generally lead to less misinterpretation than would the wider ranging questions which assess personality.

Assessment forms for a specific environment should examine each behavior or response individually. They would not attempt to provide a general description of the overall pattern of responses to the assessment as trait formats usually do. The Psychological Inventories for Competitive Swimmers were developed as an environmentally specific means of assessment which recognized the theoretical limitations of the trait assessment methods. They measure the behaviors, situations, and individual response patterns of swimmers.

Background to Experimental Design

Since one of the major purposes of the Psychological Inventories for Competitive Swimmers is to predict environment specific behavior, it was felt that the study design should also show that intent. Several sports psychologists have indicated that new research designs have been needed (Kroll, 1970; Smith, 1970; Rushall, 1973). Personality studies in sport have not been as numerous as in some disciplines. They also have not been highly innovative in design. It has been stated:

At this early stage of development, it may be a good idea to keep as many plausible options open as possible for athletic personality research. (Kroll, 1970, p. 358)

One of the major purposes of this particular study's

methodology was to examine a specific population. The population was the swimmers at the Winter National Swimming Championships 1977. Efforts were made to promote the study and thus, promote participation by most of the population. Mischel (1969) indicated that the use of samples from various populations and groups together in the same study would not indicate behavior responses as well as would a specific population. He was also careful to point out that the situation in which they are examined in is of great importance.

The importance of using the specific environment was also included in the study design. A population will be much more indicative of a behavior if it is tested at the same time and place as the behavior that is being monitored. As Mischel stated in his text, Personality and Assessment:

In behavioral analysis the emphasis is on what a person does in situations rather than on inferences about what attributes he has more globally. (Mischel, 1968, p. 10)

It was also stated that the particular situation must exert a powerful influence on the population being tested. For this investigation it was felt that the amount of energy and time used in preparation for the championships ensured that the specific environment used had a powerful influence on the subjects and their responses. The athletes were in an environment which is familiar to them and where they spend a great deal of time. The situation also elicited strong reactions because of the pressure involved in the competition. Psychologists who are involved in more general areas of research (Wallace, 1966) and those who are

involved in sport particularly (Rushall, 1973) indicated the importance of the power exerted by the situation.

The particular analysis techniques used with the data collected have been indicated by several sources. The use of categories to indicate various levels of performance is suggested in both theoretical and practical circumstances. Performance has been categorized in the studies of Rushall (1969) and Smith (1969). These studies specifically relate to the performance of swimmers. Performance categories have been used in various studies in other sports as well. The idea has also been supported by studies in personality not specific to sports.

Once the situations and the modes of response are each categorized, it should become feasible to describe individuals in terms of the kinds of responses they are likely to make in the various kinds of situations. (Endler and Hunt, 1969, p. 21)

A great deal of difficulty has arisen in most studies which relate personality to specific behavioral responses. Performance in athletics is one area where this is quite evident (Kroll, 1970). Studies which are not careful in controlling the environment often have their results distorted because of the influence of extraneous variables. In an overview of studies related to sport personality, Martens stated:

In most sport personality studies, because of the lack of internal validity resulting from methodological problems, but also from conceptual deficiencies generalizations cannot easily be made. (Martens, 1975, p. 154)

In this research theoretical and methodological

approaches which were related closely to each other were used. It is hoped that more insight into possible relationships between psychological factors and behaviors and performance in swimming were obtained.

Chapter 3

METHODOLOGY OF THE STUDY

Subjects

Swimmers who attended the 1977 Winter National Swimming Championships served as subjects. In order to participate in that competition, the athletes had to satisfy several criteria. They had to be Canadian residents who were registered members of the Canadian Amateur Swimming Association. They had to meet performance standards to be admitted to the competition. The standards had to be attained within the previous eight months to ensure that the athletes were presently near that standard of performance.

The swimmers represented clubs from all areas of the country and numbered approximately 300 athletes. Of these 300 swimmers, nearly 200 completed at least portions of the psychological studies undertaken. This study utilized completed inventories from 176 athletes.

Preliminary Preparations

Although the study was conducted within physical access to the entire population it was anticipated that it would be difficult to obtain co-operation from all athletes. Several strategies were devised to maximize the number of members of the population who would participate.

Prior to the competition a letter was sent to all coaches explaining the purpose of the study and soliciting their support (see Appendix A). At the competition site, promotions were used to encourage the support of the competitors and their coaches (see Appendixes B and C). These included a letter to the swimmers which was included with other information about the competition. The letter was similar to the preliminary letter to the coaches as it outlined the purpose of the project and its possible benefits.

Posters were displayed throughout the competition site to direct athletes to the testing centre. One additional promotional aid was used with the population. All swimmers who took part in the study were given a T-shirt which was emblazoned with an attractive emblem. This served as a further incentive to participate.

Test Administration

The inventories were presented to the athletes in the following manner:

A testing centre was opened at the competition site. This centre was in the same building as the competition. It was convenient for the athletes but was located where their responses to the inventories were not adversely affected by the distractions of the competition site. The centre was large enough to administer the inventory to 30 athletes at one time.

The inventories were administered over a period of

five days. This period included one day prior to the competition and during the four days of the competition. Most athletes were available in the one day period prior to the competition. Consequently the testing centre was available for a twelve hour period during that day. The schedule of testing during the days of actual competition was shortened slightly since most athletes were involved in most days' events. The centre was available during the period one hour prior to the preliminary heats in the morning until the finals commenced in the evening. By offering the testing facilities to the athletes for extended periods when they were available to attend there was an increase in participation by the members of the population from what otherwise might have been expected.

The administration of the test took place at anytime during the testing days. Most subjects took between 60 and 90 minutes to complete the inventories. All equipment necessary to administer the test was on hand. The test was administered by the author of this study with assistance from another trained graduate student. Both persons who administered the test were fully aware of the content and instructions involved in the test.

Before the athletes completed the inventories, data sheets were completed by each one. The name of each subject was recorded as well as the events they were competing in at the championships. Several additional questions were used to indicate both their present and past achievements at the

National Swimming Championships. An example of the data sheet used was provided in Appendix D.

The athletes tested were seated in desks, with sufficient space between each one to promote individual work. It was important that the swimmers were able to work individually without being distracted by another's work. Instructions were given to the athletes to assist them in completing the inventory. They were instructed to work alone and to be as truthful as possible while completing the inventory.

The inventories included five tests and each was responded to on the same answer sheet. Athletes were cautioned to use the correct box and test number when responding. They were informed that if they found a question difficult they should respond by filling in the middle alternative. When this was completed they started the inventories.

The athletes varied quite widely in their response times. Most completed them in 60 to 90 minutes. The tests were sufficiently interesting to maintain the athlete's interest for a long period. When the athletes had completed the inventories they handed them in to the person administering the session. It was checked for duplicated answers and incorrect or indistinct information. The swimmers were thanked for their participation and then given their complimentary T-shirt. They then left the testing site.

Post-Testing Procedures

After the championships had concluded the test booklets, answers sheets and subjects' data sheets were collected, counted and re-checked to ensure that they had been completed in their entirety. 176 swimmers had completed all facets of the test and this number was used in all the subsequent analysis.

Competition times were entered on the data sheets next to the swimmers' previous best time. The times used were the final times they achieved in each event they competed in. A percentage of improvement or non-improvement was calculated from each of the competition times and an average improvement or non-improvement for each athlete was determined.

The answer sheet data were then key-punched. A program was used to analyze the responses to provide results which would be supplied to the athletes' coaches. This analysis provided a diagnosis and recommended coaching procedures based on the response to each question. The coach was provided with a set of directives based on the behaviors which were shown to be present in the responses to the inventory. A letter of thanks for participation in the testing program was sent to each coach along with the results for each of their swimmers (see Appendix E). These results were provided to the coaches within one week of the end of the championship as it was felt it would assist others in gaining similar coach cooperation in future events.

Data Analysis

Performance categories were developed that indicated the levels of performance of the specific competition being used as well as categories which examined the achievements and history of the various swimmers.

Each category of performance that was used allowed for a full range of variation. Extreme groups were not considered alone but rather a full range of possibilities was compared. A maximum of five divisions was examined in each classification scheme. The final selection of categories and their divisions was made after the inventories were completed to ensure an adequate number of subjects in each category. Each division had to include at least 10 athletes.

Seven performance categories were ultimately chosen. The first three categories examined the history and past achievements of each of the athletes before the actual competition. Information used in formulating these categories was provided by the data sheets.

Age and Sex (N = 176). The swimmers were asked to record their age in years and their sex on the data sheets. This category would suggest possible psychological characteristics based on age and sex. Four divisions of this category were used. Females who were 15 years or younger (N = 42) and females who were 16 years or older (N = 43). The other two divisions were males 16 years or younger (N = 40) and males 17 years or over (N = 51). Different age divisions were

used for the females and males to ensure similar numbers in each division. Since the average age of the men was approximately a year older than the women, the above divisions were chosen.

Years of Participation (N = 176). Each swimmer was asked to indicate the number of years they had been swimming competitively. The possible responses included 1 to 2 years, 3 to 5 years, 6 to 8 years or more than 8 years. Since the divisions were determined on the data sheet they were not changed although there was quite a variation in the number of athletes in each division. In the first division 1 to 2 years (N = 13) for those swimming 3 to 5 years (N = 72). The third division, 6 to 8 years (N = 58) and over 8 years (N = 33). These divisions indicated that most of the national swimmers tested had been swimming competitively from 3 to 8 years.

Past Performance Ranks (N = 176). The swimmers indicated the highest achievement they had reached in previous national championships. The data sheet provided seven possible divisions and these were reduced to five after the competition. The first division was all event winners and medalists at previous nationals (N = 16). The next division was all those who had reached the finals (N = 20) followed by those who had been consolation finalists (N = 40). The fourth division included all those who had qualified and attended previous nationals (N = 49) and the last division was all those who had either not qualified or not attended previous national

championships (N = 51).

The last four categories selected were related to actual performance at the national championships. The first three categories considered both sexes within one category. The other four categories examined male and female performances separately since previous studies indicated differences in behavioral responses by the two sexes.

Female-Performance Ranks (N = 85). The performance rank indicated the highest placing achieved by each swimmer at the national championships. In order to examine divisions of more than 10 subjects only four divisions were used. These were finalists (N = 24). Consolation finalists (N = 23). Those who achieved a qualifying time (N = 19) and those who had registered all failed swims (N = 19).

Male-Performance Ranks (N = 91). The divisions of this category indicated the highest achievement by each male swimmer tested. These were finalists (N = 17) consolation finalists (N = 24) those who achieved a qualifying time (N = 35) and those who had all failed swims (N = 15).

Female-Performance Times (N = 85). An average percent improvement or non-improvement was calculated for each swimmer using their best previous times and their final performance times. The first division was all those with more than -1.5% non-improvement (N = 20). The next division was 0 to -1.5% non-improvement (N = 31). The third division was 0 to +1.0%

improvement (N = 21) and finally, more than +1.0% improvement (N = 13). Any subject with 0% was considered in the third division.

Male-Performance Times (N = 91). Improvement or non-improvement was calculated in the same manner as for the females. More than -1.5% non-improvement (N = 22), 0 to -1.5% non-improvement (N = 22). The third division 0 to +1.0% improvement (N = 32) and more than +1.0% improvement (N = 15). Different percentages were used for improvement and non-improvement in order to provide a sufficient number of subjects in each division.

Actual relationships between behavioral responses and performance categories were examined. The nature of the questions in the inventories required that only the extreme responses on the 3 point scale needed to be considered as important information. This restriction provided a more meaningful interpretation of the data (Rushall, 1975).

When examining the data several other criteria were used to signify noticeable characteristics. 1) If more than one division of each category contained 60% or greater responses in an extreme response alternative, that alternative was deemed a characteristic common to those divisions. 2) if one division in a category contained 60% or greater responses in an extreme response alternative, that alternative was deemed a characteristic of that group. A computer program was used to determine the significant characteristics.

The results of the inventories have been indicated in the following four chapters. Each of the next three chapters has discussed one category related to the behavioral responses. The seventh chapter has summarized the findings of three other categories where the results were less distinct. Each chapter has included an explanation of how the divisions were made. Each category contained either four or five divisions. Four tables follow this introduction, which show the findings of the various inventories. The responses were arranged into four tables based on the type of information provided. These tables dealt with social, attitudinal and activity behaviors as well as motivational events.

The information provided in these tables is detailed. The data should be meaningful as they are presented on the tables. Therefore only a brief summary of each table was provided. In addition some implications for practitioners involved in swimming were given.

Chapter 4

AGE AND SEX CATEGORIES RELATED TO BEHAVIORAL RESPONSES

Results

This analysis related the age and sex of the athletes to their behavioral responses. Four divisions were used in the analysis of this category. An attempt was made to keep the divisions similar in size so that the various ages and the sexes could be compared. The younger females, 15 years and under (N = 42) made up the first division. Older females, 16 years and over (N = 43) were followed next by the younger males 16 years and under (N = 40) and the older males 17 years and over (N = 51). The females ranged in age from 12 to 22 with an average age of 15. The males ranged from 13 to 26 years with 16 being the average. There were 85 females and 91 males included in the study.

The four tables that follow indicated some differences and similarities in the responses of the male and female groups and the various age divisions.

Table 1

Psychological Characteristics Concerning the
Social Behaviors of Canadian National
Swimmers (N=176) Categorized by
Sex and Age

Social Behaviours	Female N=42 15 yrs & under	Female N=43 16 yrs & over	Male N=40 16 yrs & under	Male N=51 17 yrs & over
<u>With Coach</u>				
1. Consider the coach to be reasonable always	X		X	X
2. If called by coach make it a chance to discuss swimming matters				X
3. If the coach says something wrong then is considered misinformed rather than a liar	X	X	X	X
4. When coach says something like to know the reason behind it	X	X	X	X
5. Things about swimming are best learned when explained by the coach	X	X	X	X
6. Like to make decisions about swimming with the coach	X	X	X	X
7. Try to listen to everything the coach says	X	X	X	X
<u>With Swimmers</u>				
8. Friendships within swimming are stable	X	X	X	X
9. Troubled if coach or other swimmers think poorly of them		X		
10. Do not get upset when criticized by coach and other swimmers				X
11. Do not get annoyed when talking to other swimmers			X	
12. Occasionally feel grouchy and don't want to work with other swimmers	X	X	X	X
13. Conceited swimmers are tolerated	X	X		X
14. Glad to join fellow swimmers in social events	X	X	X	X
15. Find it easy to mingle and associate with other swimmers			X	X
16. Able to accept advice from other swimmers				X

Table 1 (Continued)

Psychological Characteristics Concerning the
Social Behaviors of Canadian National
Swimmers (N=176) Categorized by
Sex and Age

	Male N=51 17 yrs & over	Male N=40 16 yrs & under	Female N=43 16 yrs & over	Female N=42 15 yrs & under
<u>General</u>				
17. Like to wait until they are sure what they say is correct when talking on swimming matters			X	
18. Parents are admired for all the things they do associated with swimming	X	X	X	X
19. When criticized wrongly have no feelings of guilt		X		
20. Want to take an active part in swim team matters and projects			X	

Table 2

Psychological Characteristics Concerning the Attitudinal Behaviors of Canadian National Swimmers N = 176 Categorized by Sex and Age

Attitudinal Behaviors	Female N = 42 15 yrs & under	Female N = 43 16 yrs & over	Male N = 40 16 yrs & under	Male N = 51 17 yrs & over
1. If difficult or unpleasant obstacles arise always stick to original intentions			X	
2. Do not have dreams about swimming that disturb sleep			X	X
3. Have some characteristics which feel are definitely superior to other swimmers				X
4. Swimming is most important activity	X	X	X	X
5. Prefer to be told privately when they have done something wrong.	X			
6. Watching weight is important	X	X		
7. Truthful when describing what is done in training	X	X	X	X
8. Strive for better performances	X	X	X	X
9. Would not stop training if performance did not improve			X	
10. Will not miss training even if do not feel like it	X	X	X	
11. Competition is more enjoyable than training	X	X	X	
12. Training is viewed as challenging	X	X	X	
13. Swimming is considered most important activity undertaken	X		X	
14. Know what they want to get out of swimming	X	X	X	X

Table 3

Psychological Characteristics Concerning the Activity
Behaviors of Canadian National Swimmers N = 176
Categorized by Age and Sex

Activity Behaviors	Female N = 42 15 yrs & under	Female N = 43 16 yrs & over	Male N = 40 16 yrs & under	Male N = 51 17 yrs & over
<u>Training</u>				
1. Keep swimming things organized and ready for immediate use		X		
2. Prefer to train with at least one other swimmer	X	X	X	X
3. Follow rules around pool	X			
4. Like slow motion movies and video tapes of swimming		X	X	X
5. Willing to try new things in technique	X	X		
6. Try to do everything as well as can in training			X	
7. Prefer to swim repeats with at least one other person		X	X	
8. Seldom miss training through illness		X		
9. Keep to posted training program	X	X	X	X
10. Do not take unscheduled rests in training	X	X	X	
<u>Competition</u>				
11. Unfamiliar pools do not affect performance	X	X	X	X
12. If upset before a race know how to calm down			X	
13. The preparation and competition of swimming is enjoyable	X	X	X	
14. Want precise plans to travel	X		X	
15. Cannot be upset by distractions before a race				X
16. If odds are really against winning a race will still produce best effort	X		X	X
17. Perform better and put more into competition than training		X		
18. If beaten in a race that expected to win are not disappointed	X			X

Table 3 (Continued)

Psychological Characteristics Concerning the Activity
Behaviors of Canadian National Swimmers N = 176
Categorized by Age and Sex

Activity Behaviors	Female N = 42 15 yrs & under	Female N = 43 16 yrs & over	Male N = 40 16 yrs & under	Male N = 51 17 yrs & over
19. Good judge of how competition is going			X	
20. Can not be upset by distractions at swim meets			X	
21. Get nervous and tense before a race	X	X		
22. Can not be distracted before race to the point where it will affect performance		X	X	
23. On the blocks concentrate on moving fast and diving far		X	X	
24. On the start concentrate on listening for the gun			X	
25. When tired in a race will try harder		X		
26. Put in a maximum race effort even if know cannot improve position	X	X		
27. If fall behind still make the race a test to do best time and effort			X	
28. Use information gained from one race to modify and plan the next race		X	X	

Table 4

Psychological Characteristics Concerning the Motivational
Events of Canadian National Swimmers N = 176 Cate-
gorized by Sex and Age

Motivational Events	Female N = 42 15 yrs & under	Female N = 43 16 yrs & over	Male N = 40 16 yrs & under	Male N = 51 17 yrs & over
<u>Training</u>				
1. Like the coach to comment favourably on training and performance	X	X	X	X
2. Like training programs with a lot of variety	X	X	X	X
3. Having training times improve	X	X	X	X
4. Like to swim butterfly in training and competition	X	X	X	X
5. Like to swim breast stroke in training and competition	X	X		X
6. Like to swim back stroke in training and competition	X	X	X	X
7. Like to swim freestyle in training and competition	X	X	X	X
8. Would be prepared to train for many years if it meant becoming an Olympic champion	X	X	X	X
9. The coach commenting frequently on technique	X	X	X	X
10. Not being rewarded with candy or small surprise things	X	X	X	X
11. Not getting patches or badges for training, attendance etc.	X	X	X	X
12. Not training more easy than hard	X	X		X
13. Swimmers at training being cooperative	X	X	X	X
<u>Competition</u>				
14. Qualifying for at least one final in each meet	X	X	X	X
15. Improving in all events not just specialty	X	X	X	X
16. Standing on the victory stand after races	X	X	X	X
17. Placing in races frequently	X	X	X	X
18. Qualifying for national championships		X	X	

Table 4 (Continued)

Psychological Characteristics Concerning the Motivational
Events of Canadian National Swimmers N = 176 Cate-
gorized by Sex and Age

Motivational Events	Female N = 42 15 yrs & under	Female N = 43 16 yrs & over	Male N = 40 16 yrs & under	Male N = 51 17 yrs & over
19. Setting own goals for times to be swum in meets		X	X	X
20. Competing in races to see if improved	X			
21. Race time improvements motivate to train more and harder	X	X	X	X
<u>General</u>				
22. Being selected for a club team	X	X	X	
23. Becoming a national champion	X	X	X	X
24. Getting information on swimming		X		
25. Keeping record of all swims to monitor own progress		X		
26. Establishing records	X	X	X	X
27. Being selected for a national team	X	X	X	X
28. Being able to travel	X	X	X	X
29. Friends outside swimming being interested in their swimming		X		
30. Having name appear in media			X	X
31. Other swimmers being friends	X	X	X	X
32. Like parents to approve of efforts in swimming	X	X	X	X
33. Knowing improvements in all facets of swimming	X	X	X	
34. Not becoming a coach		X		
35. Being able to set own ultimate goals for the sport		X	X	X

Discussion

The first table indicated the social behaviors of the various groups being analyzed. Although there were not a great number of variations in the responses, some are worthy of note. Both sexes and the different ages seemed to have similar relationships with their coaches. They all attempted to listen to the instructions given by the coach and liked to discuss their swimming careers with their coach.

The swimmers also had satisfactory relationships with their fellow athletes. The friendships were stable and this related not just to training and competition but to social events as well. All groups did indicate that there were times they would prefer to work alone. The males found it easy to associate with their fellow swimmers whereas the females did not indicate the same ease in social situations. Several male responses showed evidence of lack of concern over criticism. The females were much more easily upset by criticism in social and swimming situations. Both males and females admired the type of association their parents had with swimming. There seemed to be very little variation in how the age groups coped in social situations.

Table 2 examined the attitudes which these swimmers had to their sport. Several general responses showed that all the groups found their swimming very important and that they were constantly striving to improve their performances. They were also honest in the training environment and knew what they wanted to ultimately gain from swimming. There

were also several responses that were indicated by only one sex. The females felt that watching their weight was important in swimming but the males did not. The females also indicated that they had dreams about their swimming. Although the older athletes felt their swimming was their most important activity, they didn't feel that all aspects of swimming were the most important thing to them whereas the younger groups did.

Activity behavior, the manner in which the swimmers acted in both training and competition environments, were examined next. In the training aspect of their sport all the athletes liked to follow a specific program and do that program in a group. The females were more willing to attempt changes in their swimming technique.

In competition the groups differed to a greater extent. Only the females indicated that they were nervous and tense before their races. The females also expressed a willingness to exert a maximum effort in a race even if the final placings didn't change. The younger males indicated the most confidence in the competition situation. Both groups of younger athletes indicated that they would like precise travel plans whereas the older groups were content to make some arrangements themselves.

In the fourth table, motivational events for the swimmers were listed. All the groups emphasized virtually the same motivational events in training. They all preferred reinforcement from their coach and good relationships

with other swimmers but disliked material training rewards. All the groups indicated a desire to swim all four strokes in training programs that were varied in their content.

In competition, motivation was also provided by similar events. All the groups seemed to desire improvement in many and varied events rather than concentrating on only their specialty. Being able to travel to competition and improve both times and placings were important to all the groups. Recognition by the mass media was important to the males but not to the females.

There were several implications in these findings. The males and females indicated similar behaviors in their attitudes and activities in training. There were some important differences however, in the way they handled competition and social situations. Coaching strategies which give the sexes similar treatment in training would seem appropriate. In the actual competition the female athletes indicated a need for more emotional support. These differences supported the findings of Rushall (1970, 1976) and suggested that different arrangements be made for handling male and female swimmers in competition.

The groups did not indicate many differences based on age. As the next analysis suggests the number of years the athlete has been participating may be more important than their age.

Chapter 5

YEARS OF PARTICIPATION RELATED TO BEHAVIORAL RESPONSES

Results

Years of participation in swimming as it related to behavioral responses was analyzed in this category. The athletes tested were asked to indicate the number of years they had been swimming competitively. The possible responses were 1 - 2 years, 3 - 5 years, 6 - 8 years or more than 8 years. Since the divisions had been predetermined there was no control over the size of each. There were 13 swimmers who had competed for 1 - 2 years, 72 who competed for 3 - 5 years, 58 had competed for 6 - 8 years and 33 who had competed for more than 8 years. This information indicated that the majority of the national level swimmers tested had competed for from 3 to 8 years. The number of athletes involved decreased sharply after 8 years. It was also shown that very few of these swimmers had attained national level in 1 to 2 years of competitive swimming.

The tables that follow showed the various response similarities and differences between these groups.

Table 5

Psychological Characteristics Concerning the Social
Behaviors of Canadian National Swimmers N = 176
Categorized by Years of Participation

Social Behaviors	1-2 Years N = 13	3-5 Years N = 72	6-8 Years N = 58	> 8 Years N = 33
<u>With Coach</u>				
1. Consider coach to be reasonable always	X		X	
2. If called by coach make it a chance to discuss swimming matters	X			
3. If coach says something wrong then is considered misinformed rather than a liar	X	X	X	X
4. When coach says something like to know the reason behind it	X	X	X	X
5. Things about swimming are best learned when explained by the coach	X	X	X	X
6. Will do as coach says even if would prefer to do it another way	X			
7. Do not criticize the coach with other swimmers	X			
8. Try to listen to everything the coach says	X	X	X	X
<u>With Swimmers</u>				
9. Friendships within swimming are stable	X	X	X	X
10. Do not get upset when criticized by other swimmers or coach	X			
11. Do not get angry with coach and other swimmers quickly	X			
12. Occasionally feel grouchy and do not want to work with other swimmers	X	X	X	X
13. Hold back from criticizing the coach and other swimmers	X			
14. Conceited swimmers are tolerated	X		X	X
15. Glad to join fellow swimmers in social events	X	X	X	X
16. When working with other swimmers on task or project like to head the groups	X			

Table 5 (Continued)

Psychological Characteristics Concerning the Social
Behaviors of Canadian National Swimmers N = 176
Categorized by Years of Participation

Social Behaviors	1-2 years N = 13	3-5 years N = 72	6-8 years N = 58	> 8 years N = 33
17. Keep quiet around conceited swimmers	X			
18. Find it easy to mingle and associate with other swimmers			X	X
19. Able to accept advice from other swimmers	X			
<u>General</u>				
20. Like to wait until they are sure what they say is correct when talking on swimming matters		X		
21. Parents are admired for all the things they do associated with swimming		X	X	
22. When criticized wrongly have no feelings of guilt			X	
23. Not upset by criticism of swimming	X			
24. Want to take an active part in swim team matters and projects		X	X	
25. Can soon forget awkward social mistakes				X
26. Prefer to be told privately when have done something wrong		X		
27. Do not bother other swimmers	X			
28. Like to make decisions about swimming with the coach	X	X	X	X

Table 6

Psychological Characteristics Concerning the Attitudinal Behaviors of Canadian National Swimmers N = 176 Categorized by Years of Participation

Attitudinal Behaviors	1-2 years N = 13	3-5 years N = 72	6-8 years N = 58	> 8 years N = 33
1. Do not have dreams about swimming that disturb sleep			X	X
2. Have some characteristics which feel are definitely superior to other swimmers				X
3. Swimming is most important activity	X	X	X	X
4. Watching weight is important	X	X	X	
5. Truthful when describing what is done in training	X	X	X	X
6. Strive for better performances	X	X	X	X
7. Will not miss practice even if do not feel like it	X	X		
8. Competition is more enjoyable than training		X	X	X
9. Training is viewed as challenging	X	X	X	
10. Swimming is considered to be most important activity undertaken		X		
11. Know what want to get out of swimming	X	X	X	X

Table 7

Psychological Characteristics Concerning the Activity
Behaviors of Canadian National Swimmers N = 176
Categorized by Years of Participation

Activity Behaviors	1-2 years N = 13	3-5 years N = 72	6-8 years N = 58	> 8 years N = 13
<u>Training</u>				
1. Prefer to train with at least one other swimmer	X	X	X	
2. Like slow motion movies and video tapes of swimming	X	X	X	X
3. Always arrive early for training	X			
4. Willing to try new things in technique	X		X	
5. Does not leave training early	X			
6. Prefer to swim repeats with at least one other person	X			X
7. Seldom miss training through illness				X
8. Keep to posted training program	X	X	X	
9. Do not take unscheduled rests in training	X	X	X	X
10. Never fool around in swim practices	X			
<u>Competition</u>				
11. Unfamiliar pools do not affect performance	X	X	X	X
12. The preparation and competition of swimming is enjoyable	X	X	X	X
13. Want precise plans to travel				X
14. If odds are really against winning a race will still produce best effort		X	X	X
15. Perform better and put more into competition than training				X
16. If disappointed in a race try harder next time				X
17. If beaten in a race that expected to win are not disappointed	X		X	X
18. Get nervous and tense before a race				X
19. Cannot be distracted before a race to the point where it will affect performance	X			
20. On the blocks concentrate on moving fast and diving far	X	X	X	

Table 7 (Continued)

Psychological Characteristics Concerning the Activity
Behaviors of Canadian National Swimmers N = 176
Categorized by Years of Participation

Activity Behaviors	1-2 years N = 13	3-5 years N = 72	6-8 years N = 58	> 8 years N = 33
21. On the start concentrate on listening for the gun		X		
22. Put in a maximum race effort even if know cannot improve position	X	X		
23. If fall behind still make the race a test to do best time and effort		X		
24. Use information gained from one race to modify and plan the next race	X		X	X

Table 8

Psychological Characteristics Concerning the Motivational
Events of Canadian National Swimmers N = 176 Cate-
gorized by Years of Participation

Motivational Events	1-2 years N = 13	3-5 years N = 72	6-8 years N = 58	>8 years N = 33
<u>Training</u>				
1. Like the coach to comment favourably on training and performance	X	X	X	X
2. Like training programs with a lot of variety	X	X	X	X
3. Having training times improve	X	X	X	X
4. Not making the goal of training as the total distance covered				X
5. Would be prepared to train for many years if it meant becoming an Olympic champion	X	X	X	X
6. The coach commenting frequently on techniques	X	X	X	X
7. Not being rewarded with candy or small surprise things	X	X	X	X
8. Not getting patches or badges for attendance etc.	X	X	X	X
9. Not having training more easy than hard		X		X
10. Like to swim breast stroke in training and competition	X	X		
11. Like to swim butterfly in training and competition		X	X	X
12. Like to swim backstroke in training and competition	X	X	X	X
13. Like to swim freestyle in training and competition	X	X	X	X
14. Like to know time on each repeat in training	X			
15. Swimmers at training being cooperative	X	X	X	X
<u>Competition</u>				
16. Qualifying for at least one final in each meet	X	X	X	X
17. Standing on the victory stand after races	X	X	X	X
18. Improving in all events not just specialty	X	X	X	X

Table 3 (Continued)

Psychological Characteristics Concerning the Motivational
Events of Canadian National Swimmers N = 176 Cate-
gorized by Years of Participation

Motivational Events	1 - 2 years N = 13	3 - 5 years N = 72	6 - 8 years N = 58	> 8 years N = 33
19. Placing in races frequently	X	X	X	X
20. Qualifying for national championships	X		X	X
21. Setting own goals for times to be swum in meets			X	X
22. Not getting medals and ribbons				X
23. Competing in races to see if improved	X			
24. Race times improvements motivate to train more and harder	X	X	X	X
25. Keeping records of all swims to monitor own progress	X			
<u>General</u>				
26. Being selected on a club team	X	X	X	X
27. Swimming all four competitive strokes				X
28. Becoming a national champion	X	X	X	X
29. Getting information on swimming	X	X		
30. Establishing records	X	X	X	X
31. Being selected for a national team	X	X	X	X
32. Being able to travel	X	X	X	X
33. Friends outside of swimming being interested in their swimming			X	
34. Having name appear in media		X		
35. Other swimmers being friends	X	X	X	X
36. Like parents to approve of efforts in swimming	X	X	X	X
37. Having name placed on record board where all can see it	X			
38. Knowing improvements in all facets of swimming	X	X		X
39. Being able to set own ultimate goals for the sport	X		X	X

Discussion

Table 5, which outlined the social behaviors of the groups, indicated numerous responses that were peculiar to the 1 to 2 year participation group. This group indicated that they were generally quiet and not easily upset in social situations. They hesitated to criticize other swimmers or their coach. They can accept advice from fellow swimmers and also follow all the directives of the coach. Their relative inexperience in swimming may be responsible for some of these behaviors. Interestingly, these same athletes would rather lead than be followers in a swimming task or project. The opposite end of experience range of over 8 years indicated that they found it easy to associate with fellow swimmers. The over 8 year group also felt they could forget awkward social mistakes quickly.

In Table 6 the groups indicated some interesting attitudes relating to their sport. Although all the groups considered swimming their most important activity, only the two lesser experienced groups would not miss training if a more interesting activity arose. The two more experienced groups did not have dreams about their swimming. The over 8 year group felt they had some superior swimming characteristics whereas the other groups did not share this attitude.

In the seventh table, the differences between 1-2 year group and the other groups were emphasized again. The 1-2 year group exhibited several behaviors related to their training not shown by the others. They always arrived early,

never left early and never fooled around in their training seasons. The over 8 year group have emphasized their competition activities instead. They preferred competition to training and felt they performed better in competition than in training. These activities were reflected in the earlier table on attitudes where only the 1-2 year group did not express a preference for competition over training.

Motivation was provided by different events for some groups. The least experienced group members wanted to know their time on all repeats, liked to keep detailed records of their progress and liked to compete to see if they have improved. This curiosity and désiré for knowledge about swimming would seem natural for these newer competitive swimmers.

The most experienced group did not like training sessions where the goal is to see how much distance can be covered. They liked to set their own goals in competition and did not think it important to be rewarded with medals and ribbons for their race efforts.

This analysis indicated that the number of years a national swimmer has been participating is reflected in their behavioral responses. The least experienced group seemed quiet but at ease in most social situations. The more experienced group showed a great dedication to their training regime whereas the most experienced athletes felt they excelled more in competition. These behaviors could explain some varied performance levels shown in training and competition. The 1-2 year group also indicated a desire to acquire

knowledge and experience in several facets of swimming. The more experienced swimmers were quite sure of the features needed to motivate them and wanted to set their own performance goals. The information provided should assist the practitioner in dealing with both the "novice" and "veteran" national swimmer in social, training and competitive situations.

Chapter 6

PERFORMANCE TIMES RELATED TO BEHAVIORAL RESPONSES

Results

This analysis was concerned with the performance times registered by the swimmers at the championships. Unlike the previous two analyses which were concerned with past information, these examined behavioral responses which were indicated within four days of the performance category.

In this analysis the males and females were examined in separate categories. The reason for this method was to assist in detecting behaviors related to performance. Since males and females seemed to differ in some behaviors, it appeared that other performance categories would be clearer if they were examined separately. The first analysis divided the females ($N = 85$) into four groups based on their average percent improvement or non-improvement. An average percentage indication of performance was used since previous studies have shown that most swimmers show consistent levels of improvement or non-improvement over all events. The first group was all those who had greater than -1.5% non-improvement. Next were those whose non-improvement was from 0 to -1.5%. The third group was those who improved by 0 to 1.0% and fourth group was those who improved by more than 1.0%. They were referred to in the discussion as the more and less non-improved and the less and more improved groups, respectively.

After the females in the study were analyzed, the males

(N = 91) were examined. The same divisions of improvement and non-improvement were used. The reason the divisions were different for the improved and non-improved groups was to create better balanced groups for comparison. More swimmers both males and female were non-improved. (N = 95). Only 34 females, less than half the group and 47 males, slightly more than half, showed improvement.

Table 9

Psychological Characteristics Concerning the Social
Behaviors of Female Canadian National Swimmers N=
85 Categorized by Performance Times--%

Social Behaviors	Non-Improvement >+1.0 N=13	Improvement 0---+1.0 N=21	Non-improvement 0--- -1.5 N=31	Non-Improvement >-1.5% N=20
<u>With Coach</u>				
1. Consider the coach to be reasonable always	X		X	
2. If called by coach make it a chance to discuss swimming matters	X			
3. If coach says something wrong then is considered misinformed rather than a liar	X	X	X	X
4. When coach says something like to know the reason behind it	X	X	X	
5. Things about swimming are best learned when explained by the coach	X			
6. Able to follow rules outside of swimming training if set by the coach	X			
7. Like to make decisions about swimming with the coach	X	X	X	X
8. Try to listen to everything the coach says	X	X	X	X
<u>With Swimmers</u>				
9. Friendships within swimming are stable	X	X	X	
10. Troubled if coach or other swimmers think poorly of them		X		
11. Do not get annoyed when talking to other swimmers			X	X
12. Occasionally feel grouchy and do not want to work with other swimmers	X	X	X	X
13. Conceited swimmers are tolerated	X	X	X	
14. Glad to join fellow swimmers at social events	X	X	X	
15. Want other swimmers to do exactly as they are told when in charge				X
16. If other swimmers treat them badly they are downhearted	X			X

Table 9 (Continued)

Psychological Characteristics Concerning the Social
Behaviors of Female Canadian National Swimmers N=
85 Categorized by Performance Times--%

Social Behaviors	Non Improvement > -1.5% N=20	Non improvement 0---1.5 N=31	Improvement 0---+1.0 N=21	Improvement > +1.0 N=13
17. Find it easy to mingle and associate with other swimmers				X
18. Able to accept advice from other swimmers		X		
<u>General</u>				
19. Like to wait until they are sure of what they say is correct when talking on swimming matters		X		X
20. Parents are admired for all things they do associated with swimming		X	X	
21. When criticized wrongly have no feelings of guilt				X
22. Want to take an active part in swim team matters and projects	X	X		
23. Prefer to be told privately when have done something wrong		X		X

Table 10

Psychological Characteristics Concerning the Attitudinal
Behaviors of Female Canadian National Swimmers N=
85 Categorized by Performance Times--§

Attitudinal Behaviors	Non-improvement > -1.5 N=20	Non-improvement 0-- -1.5 N=31	Improvement 0-- +1.0 N=21	Improvement > +1.0 N=13
1. Make a point of not being absent-minded or forgetful of details about swimming				X
2. Do not have dreams about swimming that disturb sleep				X
3. Can sometimes almost be brought to tears when things concerning swimming go wrong	X			X
4. Talk about feelings associated with swimming only when necessary				X
5. Decisions concerning swimming are governed by carefully thought out reasons				X
6. Keep swimming things well organized and ready for use		X		X
7. The preparation and competition of swimming is enjoyable	X	X	X	X
8. Do not enjoy doing foolhardy things for fun			X	
9. Swimming is most important activity	X	X	X	X
10. Prepared to devote as much time as necessary to swimming		X		X
11. Watching weight is important	X	X	X	X
12. Truthful when describing what is done in training	X	X	X	X
13. Strive for better performance	X	X	X	X
14. Will not miss training even if do not feel like it	X	X	X	X
15. Competition is more enjoyable than training	X	X	X	
16. Training is viewed as challenging	X	X		X
17. Swimming is considered to be most important activity undertaken		X	X	
18. Know what want to get out of swimming	X	X	X	X

Table 11

Psychological Characteristics Concerning the Activity
Behaviors of Female Canadian National Swimmers N=
85 Categorized by Performance Times--&

Activity Behaviors	Non-improvement >-1.5 N=20	Non-improvement 0-- -1.5 N=31	Improvement 0-- +1.0 N=31	Improvement >+ 1.0 N=13
<u>Training</u>				
1. Prefer to train with at least one other swimmer	X	X		
2. Follow rules for behavior around pool	X			X
3. Like training sessions which keep one busy all the time	X			
4. Like slow motion movies and video tapes of swimming	X	X		
5. Always arrive early for training		X		
6. Willing to try new things in technique	X		X	X
7. Try to do everything as well as can in training		X		
8. Do not leave training early				X
9. Prefer to swim repeats with at least one other person	X	X		X
10. Keep to posted training program	X	X	X	X
11. Do not take unscheduled rests in training	X	X	X	X
<u>Competition</u>				
12. Do not show excitement in voice and manners at meets	X	X	X	X
13. Unfamiliar pools do not affect performance	X	X	X	X
14. Want precise plans to travel	X	X		X
15. If odds are really against winning a race will still produce best effort			X	
16. Perform better and put more into competition than training		X	X	X
17. If disappointed in a race try harder next time			X	X

Table 11 (Continued)

Psychological Characteristics Concerning the Activity
Behaviors of Female Canadian National Swimmers N=85
Categorized by Performance Times--%

Activity Behaviors	Non-improvement >-1.5 N=20	Non-improvement 0-- -1.5 N=31	Improvement 0--+1.0 N=21	Improvement >+1.0 N=13
18. If beaten in a race that expected to win are not disappointed		X	X	
19. Like to warm-up by self				X
20. Get nervous and tense before a race	X	X	X	
21. Like to be alone before an important race				X
22. Cannot be distracted before a race to the point where it will affect performance			X	
23. Can maintain concentration on approaching event through warm-up				X
24. On the blocks concentrate on moving fast and diving far		X	X	X
25. On start concentrate on listening for the gun		X	X	
26. Prefer to swim own race and regulate own pace				X
27. When tired in a race will try harder	X			
28. Put in maximum race effort even if cannot improve position		X	X	X
29. Use information gained from one race to modify and plan next race		X		X

Table 12

Psychological Characteristics Concerning the Motivational Events of Female Canadian National Swimmers N = 85 Categorized by Performance Times--%

Motivational Events	Non-improvement > -1.5 N=20	Non-improvement 0-- -1.5 N=31	Improvement 0-- +1.0 N=21	Improvement > +1.0 N=13
<u>Training</u>				
1. Like coach to comment favourably on training and performance	X	X	X	X
2. Like training programs with a lot of variety	X	X	X	X
3. Having training times improve	X	X	X	X
4. Like to swim butterfly in training and competition	X	X	X	X
5. Like to swim breast stroke in training and competition	X	X	X	X
6. Like to swim backstroke in training and competition	X	X	X	X
7. Like to swim freestyle in training and competition	X	X	X	X
8. Would be prepared to train for many years if it meant becoming an Olympic champion	X	X	X	X
9. The coach commenting frequently on techniques	X	X	X	X
10. Not being rewarded with candy or small surprise things	X		X	X
11. Not getting patches or badges for training, attendance etc.	X		X	X
12. Not having training more easy than hard	X	X		X
13. Swimmers at training being cooperative	X	X	X	X
<u>Competition</u>				
14. Qualifying for at least one final in each meet	X	X	X	X
15. Standing on the victory stand after races	X	X	X	X
16. Not having easy races frequently	X		X	
17. Improving in all events not just specialty	X	X	X	X

Table 12 (Continued)

Psychological Characteristics Concerning the Motivational Events of Female Canadian National Swimmers N = 85 Categorized by Performance Times--8

Motivational Events	Non-improvement > -1.5 N=20	Non-improvement 0-- -1.5 N=31	Improvement 0-- +1.0 N=21	Improvement > +1.0 N=13
18. Placing in races frequently	X	X	X	X
19. Qualifying for national championships		X		
20. Setting own goals for times to be swum in meets		X		X
21. Competing in races to see if improved		X		
22. Race time improvements motivate to train more and harder	X	X	X	X
<u>General</u>				
23. Getting information on swimming	X	X		
24. Keeping records of all swims to monitor own progress	X			
25. Establishing records	X	X	X	X
26. Being selected for a national team	X	X	X	X
27. Being able to travel	X	X	X	X
28. Friends outside swimming being interested in their swimming	X			X
29. Having name appear in media		X		X
30. Other swimmers being friends	X	X	X	X
31. Like parents to approve of efforts in swimming	X	X	X	X
32. Like other swimmers to notice his/her swimming and talk to him/her about it		X		
33. Becoming a national champion	X	X	X	X
34. Swimming all four competitive strokes	X			
35. Being selected on a national team	X	X	X	X
36. Enjoy competing in races although do not place frequently			X	
37. Knowing improvements in all facets of swimming	X	X		X
38. Not becoming a coach				X
39. Being able to set own ultimate goals for the sport		X		X

Discussion

The social behaviors of the female swimmers divided by performance times were shown in the ninth table. The more improved group indicated several relationships with the coach not shown by the others. They could follow rules outside of training when set by the coach and also liked to discuss swimming matters with their coach when the opportunity arose. The more improved group found it easy to associate with fellow swimmers but if they were put in charge they wanted others to follow directions exactly.

The non-improved groups seemed more interested in working with fellow swimmers on team projects than the improved groups. They also enjoyed social events related to swimming as did the less improved group.

In Table 10 on attitudes to their sport, the more improved groups indicated that they had some distinctive attitudes to swimming. Although all groups felt swimming was their most important activity only the more improved group made a point to consider details concerning their sport. They also made swimming decisions carefully but were reluctant to discuss them with others. Only the more improved group indicated that they didn't dream about swimming. Unlike the other three groups who seemed to have most attitudes in common, the more improved group took a more analytical approach to their swimming.

Table 11 indicated activity behaviors of each of the groups. The non-improved swimmers seemed to prefer training

situations where they could train with at least one other person. This group also liked sessions which kept them busy. The non-improved groups seemed to desire more guidance in their training sessions. The more improved swimmers indicated they never left training early.

In competition, the more improved group showed evidence of behaviors quite different from the others. As in their attitudes, these females seemed very rational and independent in their approach to competition. They emphasized a desire to warm-up alone and to spend time alone before an important race. In the actual race they preferred to adhere to their own race plan. This more improved group was able to maintain their concentration throughout race preparations and didn't show evidence of excitement during this period. In contrast the more non-improved group indicated very few activities related to competition. They emphasized the fact that they were nervous before races and attempted to try harder when tired in competition.

Most of the motivational events indicated in the twelfth table were common to all four groups. Only the non-improved females indicated a desire to gain further information on swimming and to keep detailed records of their progress. The more improved group was the only group not interested in gaining sufficient swimming knowledge to become a coach. Knowledge on swimming did not seem related to swimming performance with this group.

This analysis of female performance times pointed to

several interesting facts. The more improved swimmers indicated distinct attitudes and activities. They liked to plan carefully and to do so individually. The non-improvers in contrast seemed to prefer a more gregarious approach to training and competition. Coaches and others involved with swimmers should note these various approaches, especially to competition and the performances that resulted.

Results

There were 91 male swimmers analyzed in this category. The same levels of improvement or non-improvement were used as in the female analysis. There were 22 athletes in both divisions of non-improvement. Thirty-two swimmers demonstrated improvements up to 1.0% and 15 swimmers had more than 1.0% improvement.

Table 13

Psychological Characteristics Concerning the Social
Behaviors of Male Canadian National Swimmers N=
91 Categorized by Performance Times &

Social Behaviors	Non-improvement > +1.0 N=15	Improvement 0-- +1.0 N=32	Non-improvement 0 -- -1.5 N=22	Non-improvement > -1.5 N=22
<u>With Coach</u>				
1. Consider coach to be reasonable always	X	X	X	X
2. Need coach to direct what to do at important swim meets	X			
3. If called by coach make it a chance to discuss swimming matters			X	X
4. If coach says something wrong then is considered misinformed rather than a liar	X	X	X	X
5. When coach says something like to know the reason behind it	X	X	X	
6. Things about swimming are best learned when explained by the coach		X	X	
7. Like to make decisions about swimming with the coach	X	X	X	X
8. Try to listen to everything the coach says	X	X		X
<u>With Swimmers</u>				
9. Friendships within swimming are stable	X	X		X
10. Do not let jealousy of other swimmers influence actions				X
11. Accept the friendship expressed by other swimmers as honest friendship			X	
12. Do not get upset when criticized by other swimmers and coaches	X	X		
13. Do not get angry with coach and other swimmers quickly	X			
14. Do not get annoyed when talking to other swimmers		X		
15. Occasionally feel grouchy and don't want to work with other swimmers	X	X	X	X

Table 13 (Continued)

Psychological Characteristics Concerning the Social
Behaviors of Male Canadian National Swimmers N=91
Categorized by Performance Times %

Social Behaviors	Non-improvement > -1.5 N=22	Non-improvement 0-- -1.5 N=22	Improvement 0-- +1.0 N=32	Improvement > +1.0 N=15
16. Conceited swimmers are tolerated	X		X	X
17. When talking to other swimmers like to say things as they come to mind		X		
18. Glad to join fellow swimmers at social events	X	X	X	X
19. Want other swimmers to do exactly as they are told when in charge			X	X
20. Keep quiet around unreasonable swimmers				X
21. Find it easy to mingle and associate with others swimmers		X	X	X
22. Able to accept advice from other swimmers	X	X		
<u>General</u>				
23. Parents are admired for all the things they do associated with swimming	X			
24. Talk about feelings associated with swimming only when necessary			X	
25. When criticized wrongly have no feelings of guilt	X			X
26. Not upset by criticism of swimming	X	X		
27. Like to take an active part in swim team matters and projects			X	X

Table 14

Psychological Characteristics Concerning the Attitudinal
Behavior of Male Canadian National Swimmers N = 91
Categorized by Performance Times %

Attitudinal Behaviors	Non-improvement > -1.5 N=22	Non-improvement 0 -- -1.5 N=22	Improvement 0 -- +1.0 N=32	Improvement > +1.0 N=15
1. Often aware of health and feeling problems associated with swimming		X		
2. If difficult or unpleasant obstacles arise always stick to original intentions				X
3. Do not have dreams about swimming that disturb sleep	X	X	X	
4. Decisions concerning swimming are governed by carefully thought out reasons		X		X
5. Have some characteristics which feel are definitely superior to other swimmers				X
6. The preparation and competition of swimming is enjoyable	X	X	X	X
7. Consider self to be enthusiastic about swimming			X	
8. Swimming is most important activity		X	X	X
9. Mistakes in swimming situation can soon be forgotten	X			
10. Watching weight is important				X
11. Truthful when describing what is done in training	X	X	X	X
12. Strive for better performances	X	X	X	X
13. Will not miss training even if do not feel like it				X
14. Competition is more enjoyable than training			X	X
15. Training is viewed as challenging	X			X
16. Know what want to get out of swimming	X	X	X	X

Table 15

Psychological Characteristics Concerning the Activity
Behavior of Male Canadian National Swimmers N=91
Categorized by Performance Times %

Activity Behaviors	Non-improvement >-1.5 N=22	Non-improvement 0-- -1.5 N=22	Improvement 0-- +1.0 N=32	Improvement >+1.0 N=15
<u>Training</u>				
1. Prefer to train with at least one other swimmer	X	X	X	
2. Like slow motion movies and video tapes of swimming	X	X	X	
3. Always arrive early for training				X
4. Willing to try new things in technique			X	X
5. Try to do everything as well as can in training			X	X
6. Prefer to swim repeats with at least one other person	X			
7. Seldom miss training through illness				X
8. Enjoy hard training sessions				X
9. Keep to posted training program	X	X		X
10. Do not take unscheduled rests in training				X
<u>Competition</u>				
11. Do not get excited and rattled at meets	X			
12. Unfamiliar pools do not affect performance	X	X	X	X
13. Want precise plans to travel		X		
14. If odds are really against winning race will still produce best effort	X		X	X
15. Perform better and put more into competition than training				X
16. If disappointed in a race try harder next time			X	
17. If beaten in a race that expected to win are not disappointed	X	X		
18. Good judge of how competition is going		X	X	
19. Can not be upset by distractions at swim meets	X		X	

Table 15 (Continued)

Psychological Characteristics Concerning the Activity
 Behavior of Male Canadian National Swimmers N=91
 Categorized by Performance Times %

Activity Behaviors	Non-improvement > -1.5 N=22	Non-improvement 0-- -1.5 N=22	Improvement 0-- +1.0 N=32	Improvement >+1.0 N=15
20. Get nervous and tense before a race				X
21. Like swimming races planned in detail				X
22. Cannot be distracted before race to the point where it will affect performance	X			
23. Some form of mental rehearsal is used before a race				X
24. Can maintain concentration on approaching event through warm-up			X	
25. On the blocks concentrate on moving fast and diving far	X			X
26. Able to get out fast in a race if needed			X	
27. On the start concentrate on listening for the gun		X	X	X
28. Prefer to swim own race and regulate own pace			X	
29. When tired in a race will try harder				X
30. If fall behind still make the race a test to do best time and effort	X		X	
31. Use information gained from one race to modify and plan next race	X	X		X

Table 16

Psychological Characteristics Concerning the Motivational
Events of Male Canadian National Swimmers N=91 Cate-
gorized by Performance Times %

Motivational Events	Non-improvement > -1.5 N=22	Non-improvement 0-- -1.5 N=22	Improvement 0-- +1.0 N=32	Improvement > +1.0 N=15
<u>Training</u>				
1. Like coach to comment favourably on training and performance	X	X	X	X
2. Like training programs with a lot of variety	X	X	X	X
3. Having training times improve	X	X	X	X
4. Like to swim butterfly in training and competition	X	X		X
5. Like to swim breast stroke in training and competition	X			
6. Like to swim back stroke in training and competition	X			
7. Like to swim free style in training and competition	X	X	X	X
8. Would be prepared to train for many years if it meant becoming an Olympic champion	X	X	X	X
9. The coach commenting frequently on techniques	X	X	X	X
10. Not being rewarded with candy or small surprise things	X	X	X	
11. Not getting patches or badges for training, attendance, etc.		X	X	
12. Not having training more easy than hard	X	X		X
13. Swimmers at training being cooperative	X	X	X	X
<u>Competition</u>				
14. Qualifying for at least one final in each meet	X	X	X	X
15. Standing on the victory stand after races	X	X	X	X
16. Improving in all events not just specialty	X	X	X	X

Table 16 (Continued)

Psychological Characteristics Concerning the Motivational
Events of Male Canadian National Swimmers N=91 Cate-
gorized by Performance Times *

Motivational Events	Non-improvement > -1.5 N=22	Non-improvement 0-- -1.5 N=22	Improvement 0-- +1.0 N=32	Improvement > +1.0 N=15
17. Placing frequently in races	X	X	X	X
18. Qualifying for national championships	X		X	X
19. Setting own goals for times to be swum in meets	X	X	X	
20. Competing in races to see if improved	X			
21. Race time improvements motivate to train more and harder	X	X	X	X
<u>General</u>				
22. Becoming a national champion	X	X	X	X
23. Getting information on swimming		X		
24. Establishing records	X	X	X	X
25. Being selected for a national team	X	X	X	X
26. Being able to travel	X	X	X	X
27. Friends outside swimming being inter- ested in their swimming				X
28. Having name appear in media	X		X	X
29. Other swimmers being friends	X	X	X	X
30. Like parents to approve of efforts in swimming	X	X	X	X
31. Like other swimmers to notice his/her swimming and talk to him/her about it	X			X
32. Swimming all four competitive strokes	X			
33. Being selected on a club team	X		X	X
34. Having name placed on record board where all can see it	X			X
35. Knowing improvement in all facets of swimming		X		
36. Coach setting goals for races				X
37. Being able to set own ultimate goals for the sport	X	X	X	X

Discussion

In Table 13 on social behaviors the more improved male swimmers indicated a desire to be guided by their coach at important competitions. These swimmers also shared a desire to know the reason for all coach directives. The non-improved swimmers expressed a desire to discuss swimming matters with the coach. In relationships with other swimmers, the non-improved groups expressed an acceptance of criticism. They were able to accept advice and avoided becoming angry or upset in most social situations. If criticism was unwarranted they did not feel guilty. The improved groups tended to be quiet in many social situations but did enjoy involvement in swim team projects.

As with the females, the more improved male swimmers indicated several distinctive attitudes (see Table 14). They felt they had some characteristics superior to other swimmers and indicated they were always able to stick with original intentions. They enjoyed competition more than training but nevertheless were the only group who would not miss training. The least improved swimmers felt that when mistakes occurred in their swimming they were able to forget them quickly.

In their activities concerning swimming, the more improved males, again like the females, had several distinctive features. In training they were the only group to indicate that they seldom miss practice, always arrive early, never take unscheduled rests, and prefer hard training sessions.

Both improved groups indicated a willingness to try new things and to do everything in training as well as possible. The non-improved males were similar to the non-improved females in their desire to swim with at least one other person.

In competition both the more improved group and the more non-improved group exhibited distinctive behaviors. The more improved group preferred competition but did become nervous and tense. They also liked to plan their races in detail and to mentally rehearse these races. The more non-improved group indicated that they didn't become excited or distracted in competition. They also did not express disappointment when they were defeated.

Motivational events were quite similar to all the groups (see Table 16). Only the more non-improved swimmers wanted to compete in all four strokes. This group also felt one of their main reasons to compete was to see if they had improved. Interestingly, only the more improved swimmers did not wish to set their own goals for competition. They felt they wanted their coach to set competition standards.

A comparison of the various levels of performance improvement and non-improvement showed interesting features. As with their female counterparts, the males who improved the most indicated attitudes and activities which the other groups did not show. They enjoyed competition and felt they had the ability for superior performance. As with the females they planned their races carefully and in detail. They also indicated a dedicated attitude and approach to training. The

more non-improved athletes tended to approach their swimming differently. In social situations and particularly in competition, they did not become extremely excited or emotionally involved. Of importance to those involved in coaching swimmers is that the males and the females who produced the most improvement exhibited certain behavioral responses in their attitudes as well as in training and competition. Some of these behaviors might be valuable to other swimmers involved in major competition.

Chapter 7

ADDITIONAL CATEGORIES RELATED TO BEHAVIORAL RESPONSES

Results

In these three analyses performance ranks of the subjects were examined. In the first analysis past performance ranks were analyzed. The other two analyses examined the performance rank achieved in the competition studied. Performance rank refers to place achieved in an event. Possible ranks included event winner, medalist, finalist, consolation finalists, those who met a qualifying time and those who registered all failed swims. These three categories were examined briefly since a limited relationship was seen between the category divisions and the behavioral responses. The reason for this lack of relationship contains several possibilities. Since the athletes were at various stages of their swimming careers the same performance rank would not connote success for each group. A 13 year old in his/her second year of swimming may not have the same expectations at the national championships as an 18 year old in the eighth year of swimming even though they have both achieved national status. Performance times in contrast seem to have indicated a relationship. This might be related to the fact that improvement in times recorded was desired by all swimmers at the national championships regardless of their present rank. A second

possible reason could be that the groups contained a wide variance in performance, since only the individual swimmer's highest rank was examined. Performance ranks varied greatly from a finalist who made all six finals for events he entered, to a finalist who made only one final and had several other failed swims.

Past Performance Rank

Both male and female subjects were considered together in this category since past achievement rather than present performance was being examined. Since $N = 176$, the subjects were considered in five rather than four divisions. These divisions were event winners and medalists $N = 16$, finalists $N = 20$, consolation finalists, $N = 40$, qualifiers $N = 49$ and not qualified $N = 51$. The groups were divided according to the highest rank each individual had achieved in national competition. The subjects indicated their highest achievement on the data sheet. Since only five categories could be considered by the computer analysis, those who had qualified but had not attended the nationals were considered with those who had not qualified or attended. They were grouped together since neither had experienced a previous national championship.

Present Performance Rank - Female

In order to obtain the necessary 10 subjects in each group, the females $N = 85$ could not be considered in five

categories based on their performance at the nationals. Medalists and finalists were considered together $N = 24$, consolation finalists $N = 23$ were examined next. $N = 19$ for those who made a qualifying time and $N = 19$ for those who had all failed swims. As in the previous category, the highest rank achieved was used to group the subjects.

Present Performance Rank--Male

The same divisions were used for this category as were used with the females. The males, $N = 91$, were divided into finalists $N = 17$, consolation finalists $N = 24$, qualifiers $N = 35$ and failed swims $N = 15$. An additional interesting point was that although the males had slightly more than half of their number register improved times, they had less than half the total group achieve the finals or consolation finals $N = 41$. The females achieved the opposite performance information, less than half the females had improved times but more than half $N = 47$ achieved the finals or consolation finals.

Table 17

Psychological Characteristics Concerning the Social
Behaviors of Canadian National Swimmers N = 176
Categorized by Past Performance Rank

Social Behaviors	Event Winners: Medalists N=16	Finalists N=20	Consolation Finalists N=40	Qualified: attended N=49	Did not qualify N = 51
<u>With Coach</u>					
1. Consider coach to be reasonable al- ways	X	X	X		
2. If called by coach make it a chance to discuss swimming matters		X			
3. If the coach says something wrong is considered misinformed rather than a liar	X	X	X	X	X
4. When the coach says something like to know the reason behind it		X	X	X	X
5. Things about swimming are best learned when explained by the coach		X	X	X	
6. Like to make decisions about swimming with the coach	X	X	X	X	X
7. Try to listen to everything the coach says		X	X	X	X
<u>With Swimmers</u>					
8. Friendships within swimming are stable		X	X		X
9. Accept friendship expressed by other swimmers as honest friendship	X				
10. Do not get upset when criticized by other swimmers and coaches		X			
11. Do not get annoyed when talking to other swimmers		X			
12. Occasionally feel grouchy and do not want to work with other swimmers	X	X	X	X	X
13. Conceited swimmers are tolerated	X	X	X		X
14. Glad to join fellow swimmers in social events		X	X	X	X
15. Keep quiet when swimmers are un- reasonable		X			

Table 17 (Continued)

Psychological Characteristics Concerning the Social
Behaviors of Canadian National Swimmers N = 176
Categorized by Past Performance Rank

Social Behaviors	Event Winners Medalists N=16	Finalists N=40	Consolation Finalists N=40	Qualified: attended N=49	Did not qualify N = 51
16. Find it easy to mingle and associate with other swimmers		X	X		X
17. Able to accept advice from other swimmers		X			
<u>General</u>					
18. Parents are admired for all the things they do associated with swimming		X			X
19. When criticized wrongly have no feelings of guilt		X			X
20. Like to take an active part in swim team matters and projects		X		X	X
21. Mistakes in swimming situation can soon be forgotten		X			
22. Prefer to be told privately when something is done wrong	X		X		

Table 18

Psychological Characteristics Concerning the Attitudinal
Behaviors of Canadian National Swimmers N = 176
Categorized by Past Performance Rank

Attitudinal Behaviors	Event Winners Medalists N=16	Finalists N=20	Consolation Finalists N=40	Qualified: Attended N=49	Did not qualify N=51
1. If had swimming career over again would want it the same		X			
2. Often aware of health and feeling problems associated with swimming	X				
3. If difficult or unpleasant obstacles arise always stick to original in- tentions	X				
4. Do not have dreams about swimming that disturb sleep	X	X			
5. Decisions concerning swimming are governed by carefully thought out reasons		X	X		
6. Prefer to have swimming training presented as it arises		X			
7. Consider self to be enthusiastic about swimming		X			
8. Swimming is most important activity	X		X	X	X
9. Watching weight is important		X	X	X	X
10. Truthful when describing what is done in training	X	X	X	X	X
11. Strive for better performances	X	X	X	X	X
12. Would not stop training if per- formance did not improve	X	X			
13. Will not miss practice even if do not feel like it		X		X	X
14. Competition is more enjoyable than training		X		X	X
15. Training is viewed as challenging	X	X	X		X
16. Know what want to get out of swimming	X	X	X	X	X

Table 19

Psychological Characteristics Concerning the Activity
Behaviors of Canadian National Swimmers N = 176
Categorized by Past Performance Rank

Activity Behaviors	Event Winners : Medalists N = 16	Finalists N = 20	Consolation Finalists N=40	Qualified: attended N=49	Did not qualify N=51
<u>Training</u>					
1. Keep swimming things organized and ready for immediate use		X			X
2. Prefer to train with at least one other swimmer	X	X	X	X	X
3. Like slow motion movies and video tapes of swimming	X	X		X	X
4. Always arrives early for training				X	
5. Willing to try new things in technique		X		X	X
6. Prefer to swim repeats with at least one other person	X		X		X
7. Keep to posted training program	X	X	X	X	X
8. Do not take unscheduled rests in training		X	X	X	X
<u>Competition</u>					
9. Unfamiliar pools do not affect performance		X	X	X	X
10. The preparation and competition of swimming is enjoyable	X		X	X	X
11. Want precise plans to travel		X			X
12. Cannot be upset by distractions before a race				X	
13. If odds are really against winning a race will still produce best effort	X	X	X	X	X
14. Perform better and put more into competition than training					X
15. If disappointed in a race try harder next time					X
16. If beaten in a race that expected to win are not disappointed			X	X	X

Table 19 (Continued)

Psychological Characteristics Concerning the Activity
Behaviors of Canadian National Swimmers N = 176
Categorized by Past Performance Rank

Activity Behaviors	Event Winners: Medalists N=16	Finalists N=20	Consolation Finalists N=40	Qualified: attended N=49	Did not qualify N = 51
17. Cannot be upset by distractions at swim meets		X			
18. Get nervous before important races		X			
19. Know how to get "up" before a race so that will perform best					X
20. Cannot be distracted before race to the point where it will affect performance		X			X
21. Some form of mental rehearsal is used before a race	X	X			
22. Can maintain concentration on approaching event through warm-up		X			
23. On the blocks concentrate on moving fast and diving far	X	X			X
24. Do not think of how much effort of racing will hurt	X				
25. On the "start" concentrate on listening for the gun	X	X	X		
26. When tired in a race will try harder		X		X	
27. If fall behind still make the race a test to do best time and effort	X	X			
28. Use information gained from one race to modify and plan the next race	X	X		X	X

Table 20

Psychological Characteristics Concerning the Motivational
Events of Canadian National Swimmers N = 176 Categorized
by Past Performance Rank

Motivational Events	Event Winners: Medalists N=16	Finalists N=20	Consolation Finalists N=40	Qualified: attended N=49	Did not qualify N=51
<u>Training</u>					
1. Like the coach to comment on training and performance	X	X	X	X	X
2. Like training programs with a lot of variety	X	X	X	X	X
3. Having training times improve	X	X	X	X	X
4. Like to swim butterfly in training and competition	X	X	X	X	X
5. Like to swim breast stroke in training and competition		X	X		
6. Like to swim backstroke in training and competition	X	X	X	X	X
7. Like to swim freestyle in training and competition	X	X	X	X	X
8. Would be prepared to train for many years if it meant becoming an Olympic champion	X	X	X	X	X
9. The coach commenting frequently on technique	X	X	X	X	X
10. Not being rewarded with candy and small surprise things	X	X	X		X
11. Not getting patches or badges for training, attendance etc.			X	X	X
12. Like to compete against at least one other swimmer in each repeat		X			
13. Not having training more easy than hard	X	X		X	X
14. Like to know time on each repeat in training		X			
15. Swimmers at training being co-operative	X	X	X	X	X

Table 20 (Continued)

Psychological Characteristics Concerning the Motivational
Events of Canadian National Swimmers N = 176 Categorized
by Past Performance Rank

Motivational Events	Event Winners: Medalists N=16	Finalists N=20	Consolation Finalists N=40	Qualified: attended N=49	Did not qualify N = 51
<u>Competition</u>					
16. Qualifying for at least one final in each meet	X	X	X	X	X
17. Standing on the victory stand after races	X	X	X	X	X
18. Improving in all events not just specialty	X	X	X	X	X
19. Placing in races frequently	X	X	X	X	X
20. Qualifying for national championships	X	X	X		X
21. Setting own goals for times to be swum in meets	X	X		X	X
22. Competing in races to see if improved	X	X	X		
23. Race time improvements motivate to train more and harder	X	X	X	X	X
24. Enjoy competing in races although don't place often		X			
<u>General</u>					
25. Becoming a national champion	X	X	X	X	X
26. Swimming all four competitive strokes		X			
27. Getting information on swimming				X	X
28. Keep records of all swims to monitor own progress		X			
29. Establishing records	X	X	X	X	X
30. Being selected for a national team	X	X	X	X	X
31. Being able to travel	X	X	X	X	X
32. Friends outside of swimming being interested in their swimming	X				
33. Having name appear in media		X		X	

Table 20 (Continued)

Psychological Characteristics Concerning the Motivational
Events of Canadian National Swimmers N = 176 Categorized
by Past Performance Rank

Motivational Events	Event Winners: Medalists N=16	Finalists N=20	Consolation Finalists N=40	Qualified: attended N=49	Did not qual- ify N=51
34. Other swimmers being friends	X	X	X	X	X
35. Like other swimmers to notice swimming		X			
36. Like parents to approve of efforts in swimming	X	X	X	X	X
37. Being selected for a club team	X	X	X	X	X
38. Having name placed on a record board where all can see it		X			
39. Knowing improvements in all facets of swimming		X	X	X	X
40. Being able to set own ultimate goals for the sport	X	X		X	X

Table 21

Psychological Characteristics Concerning the Social
Behaviors of Female Canadian National Swimmers N=
85 Categorized by Performance Ranks

Social Behaviors	Finalists N=24	Consolation Finalists N=23	Qualified N=19	Failed Swim N=19
<u>With Coach</u>				
1. Consider the coach to be reasonable al- ways		X	X	
2. If the coach says something wrong then is considered misinformed rather than a liar	X	X	X	X
3. Able to follow rules outside of swimming training if set by the coach		X		
4. Like to make decisions about swimming with the coach	X	X	X	X
5. Try to listen to everything the coach says	X	X	X	X
<u>With Swimmers</u>				
6. Friendships within swimming are stable		X	X	
7. Troubled if coach or other swimmers think poorly of them			X	X
8. Occasionally feel grouchy and don't want to work with other swimmers	X	X	X	X
9. Conceited swimmers are tolerated	X	X		X
10. Glad to join fellow swimmers in social events		X	X	X
11. If other swimmers treat them badly they get downhearted			X	
12. Find it easy to mingle and associate with other swimmers		X		
13. Hold back from showing up other swimmer who is behaving badly				X
14. Able to accept advice from other swimmers		X		
15. Do not bother other swimmers				X

Table 21 (Continued)

Psychological Characteristics Concerning the Social
Behaviors of Female Canadian National Swimmers N=
85 Categorized by Performance Ranks

Social Behaviors	Finalists N=24	Consolation Finalists N=23	Qualified N=19	Failed Swim N=19
<u>General</u>				
16. Parents are admired for all the things they do associated with swimming	X	X	X	
17. When criticized wrongly have no feelings of guilt	X	X		
18. Want to take an active part in swim team matters and projects		X	X	X
19. Prefer to be told privately when have done something wrong	X			X

Table 22

Psychological Characteristics Concerning the Attitudinal
Behaviors of Female Canadian National Swimmers N=85
Categorized by Performance Ranks

Attitudinal Behaviors	Finalists N=24	Consolation Finalists N=23	Qualified N=19	Failed Swim N=19
1. Make a point of not being absent minded or forgetful of details of swimming	X			
2. If difficult or unpleasant obstacles arise, always stick to original intentions				X
3. Can sometimes almost be brought to tears when things concerning swimming go wrong			X	
4. The preparation and competition of swimming is enjoyable	X	X	X	X
5. Consider self to be enthusiastic about swimming		X		
6. Swimming is the most important activity	X	X	X	X
7. Would not miss training even if a more interesting activity came up	X			
8. Prepared to devote as much time as necessary to swimming	X	X		
9. Watching weight is important	X	X	X	X
10. Truthful when describing what is done in training	X	X	X	X
11. Strive for better performances	X	X	X	X
12. Will not miss training even if do not feel like it	X	X	X	X
13. Competition is more enjoyable than training		X	X	
14. Training is viewed as challenging	X	X		
15. Swimming is considered to be most important activity undertaken		X		
16. Know what want to get out of swimming	X	X	X	X

Table 23

Psychological Characteristics Concerning the Activity
Behaviors of Female Canadian National Swimmers N=85
Categorized by Performance Ranks

Activity Behaviors	Finalists N=24	Consolation Finalists N=23	Qualified N=19	Failed Swim N=19
<u>Training</u>				
1. Keep swimming things well organized and ready for use	X	X		X
2. Prefer to train with at least one other swimmer	X	X		X
3. When the coach says something like to know the reason behind it	X	X	X	
4. Things about swimming are best learned when explained by the coach	X		X	
5. Follow rules for behavior around the pool	X			X
6. Like training sessions which keep one busy all the time				X
7. Like slow motion movies and video tapes of swimming		X		
8. Willing to try new things in technique		X	X	X
9. Does not leave training early				X
10. Prefer to swim repeats with at least one other person	X	X		
11. Seldom miss training through illness	X		X	
12. Keep to the posted training program	X	X	X	X
13. Do not take unscheduled rests in training	X	X	X	X
<u>Competition</u>				
14. Unfamiliar pools do not affect performance	X	X	X	X
15. Want precise plans to travel	X			X
16. Cannot be upset by distractions before race	X			
17. If odds are really against winning a race will still produce best effort	X	X		X
18. Perform better and put more into competition than training			X	
19. If disappointed in a race try harder next time	X			

Table 23 (Continued)

Psychological Characteristics Concerning the Activity
Behaviors of Female Canadian National Swimmers N=85
Categorized by Performance Ranks

Activity Behaviors	Finalists N=24	Consolation Finalists N=23	Qualified N=19	Failed Swim N = 19
20. If beaten in a race that expected to win are not disappointed	X	X	X	
21. Get nervous and tense before a race			X	X
22. Cannot be distracted before race to point where it will affect performance		X		
23. On the blocks concentrate on moving fast and diving far	X	X		
24. Do not think of how much the effort of racing will hurt	X			
25. Able to go out fast in a race if needed		X		
26. On the start concentrate on listening for the gun			X	X
27. When tired in a race will try harder	X			
28. Put in a maximum race effort even if know cannot improve position		X	X	
29. If fall behind still make the race a test to do best time and effort		X		X
30. Use information from one race to modify and plan the next race		X	X	X

Table 24

Psychological Characteristics Concerning the Motivational Events of Female Canadian National Swimmers N = 85 Categorized by Performance Ranks

Motivational Events	Finalists N=24	Consolation Finalists N=23	Qualified N=19	Failed Swim N=19
Training				
1. Like the coach to comment favourably on training and competition	X	X	X	X
2. Like training programs with a lot of variety	X	X	X	X
3. Having training times improve	X	X	X	X
4. Like to swim butterfly in training and competition	X	X	X	X
5. Like to swim breast stroke in training and competition	X	X		X
6. Like to swim back stroke in training and competition		X	X	X
7. Like to swim free style in training and competition	X	X	X	X
8. Would be prepared to train for many years if it meant becoming an Olympic champion	X	X	X	X
9. The coach commented frequently on techniques	X	X	X	X
10. Not being rewarded with candy or small surprise things	X	X	X	X
11. Not getting patches or badges for training, attendance, etc.	X	X		X
12. Not having training more easy than hard	X	X		X
13. Swimmers at training being cooperative	X	X	X	X
Competition				
14. Qualifying for at least one final in each meet	X	X	X	X
15. Standing on the victory stand after races	X	X	X	X
16. Not having easy races frequently		X		
17. Improving in all events not just specialty	X	X	X	X
18. Placing in races frequently	X	X	X	X
19. Qualifying for national championships			X	

Table 24 (Continued)

Psychological Characteristics Concerning the Motivational
Events of Female Canadian National Swimmers N = 85
Categorized by Performance Ranks

Motivational Events	Finalists N=24	Consolation Finalists N=23	Qualified N=19	Failed Swim N=19
20. Setting own goals for times to be swum in meets	X	X		
21. Competing in races to see if improved				X
22. Race time improvements motivate to train more and harder	X	X	X	X
23. Knowing improvements in all facets of swimming	X	X		X
24. Swimming all four competitive strokes	X			X
<u>General</u>				
25. Like parents to approve of efforts in swimming	X	X	X	X
26. Becoming a national champion	X	X	X	X
27. Getting information on swimming		X	X	X
28. Keeping records of all swims to monitor own progress		X		X
29. Establishing records	X	X	X	X
30. Being selected for a national team	X	X	X	X
31. Being able to travel	X	X	X	X
32. Friends outside of swimming being interested in their swimming	X			X
33. Having name appear in media	X			X
34. Other swimmers being friends	X	X	X	X
35. Being selected on a club team	X	X	X	X
36. Having name placed on a record board where all can see it				X
37. Not becoming a coach		X		
38. Being able to set own ultimate goals for the sport	X	X		

Table 25

Psychological Characteristics Concerning the Social Behaviors
of Male Canadian National Swimmers N = 91 Categorized by
Performance Ranks

Social Behaviors	Failed Swim N=15	Qualifiers N=35	Consolation Finalists N=24	Finalists N=17
<u>With Coach</u>				
1. Consider coach to be reasonable always	X	X	X	X
2. If called by coach make it a chance to discuss swimming matters	X			
3. If coach says something wrong then is considered misinformed rather than a liar	X	X	X	X
4. When coach says something like to know the reason behind it	X		X	X
5. Things about swimming are best learned when explained by the coach		X	X	
6. Like to make decisions about swimming with the coach	X	X	X	X
7. Try to listen to everything the coach says	X	X	X	
<u>With Swimmers</u>				
8. Friendships within swimming are stable	X	X	X	X
9. Do not get upset when criticized by other swimmers and coaches		X	X	X
10. Do not get angry with coach and other swimmers quickly				X
11. Occasionally feel grouchy and do not want to work with other swimmers	X	X	X	X
12. Conceited swimmers are tolerated	X	X	X	
13. When talking to other swimmers like to say things as they come to mind	X	X	X	X
14. Glad to join fellow swimmers at social events	X	X	X	X
15. Want other swimmers to do exactly as they are told when in charge		X	X	
16. When working with other swimmers on a task or project like to lead the group				X

Table 25 (Continued)

Psychological Characteristics Concerning the Social
Behaviors of Male Canadian National Swimmers N=91
Categorized by Performance Ranks

Social Behaviors	Finalists N=17	Consolation Finalists N=24	Qualifiers N=35	Failed Swim N=15
17. Find it easy to mingle and associate with other swimmers			X	
18. Able to accept advice from other swimmers			X	
<u>General</u>				
19. Parents are admired for all the things they do associated with swimming	X		X	X
20. Readily come forward at social occasions concerning swimming				X
21. When criticized wrongly have no feelings of guilt	X			X
22. Not embarrassed if focus of attention on team	X			
23. Not upset by criticism of swimming		X		
24. Like to take an active part in swim team matters and projects	X	X		
25. Can soon forget awkward social mistakes	X			X

Table 26

Psychological Characteristics Concerning the Attitudinal
Behaviors of Male Canadian National Swimmers N=91
Categorized by Performance Ranks

Attitudinal Behaviors	Finalists N=17	Consolation Finalists N=24	Qualifiers N=35	Failed Swim N=15
1. Often aware of health and feeling problems associated with swimming				X
2. Do not have dreams about swimming that disturb sleep		X	X	X
3. Decisions concerning swimming are governed by carefully thought out reasons		X		
4. Have some characteristics which feel are definitely superior to other swimmers	X	X		
5. The preparation and competition of swimming is enjoyable		X	X	X
6. Do not get irritated by small setbacks and problems		X		
7. Consider self to be enthusiastic about swimming		X		
8. Swimming is most important activity	X	X	X	X
9. Mistakes in swimming situation can soon be forgotten				X
10. Truthful when describing what is done in training	X	X	X	X
11. Strive for better performances	X	X	X	X
12. Would not stop training if performance did not improve		X		X
13. Will not miss training even if do not feel like it		X		
14. Competition is more enjoyable than training	X	X		X
15. Training is viewed as challenging		X		X
16. Know what want to get out swimming	X	X	X	X

Table 27

Psychological Characteristics Concerning the Activity
Behaviors of Male Canadian National Swimmers N = 91
Categorized by Performance Ranks

Activity Behaviors	Finalists N=17	Consolation Finalists N=24	Qualifiers N=35	Failed Swim N=15
<u>Training</u>				
1. Prefer to train with at least one other swimmer	X	X	X	X
2. Prefer to have swimming training presented as it arises				X
3. Like slow motion movies and video tapes of swimming	X	X	X	X
4. Always arrive early for training		X		
5. Willing to try new things in technique	X			
6. Try to do everything as well as can in training		X		
7. Prefer to swim repeats with at least one other person	X			X
8. Enjoy hard training sessions		X		
9. Keep to posted training program	X			X
10. Do not take unscheduled rests in training		X		X
<u>Competition</u>				
11. Do not get excited and rattled at meets				X
12. Unfamiliar pools do not affect performance	X	X	X	X
13. If upset before a race know how to calm down				X
14. Want precise plans to travel	X		X	
15. Cannot be upset by distractions before race		X		
16. If odds are really against winning a race will still produce best effort		X	X	X
17. Perform better and put more into competition than training	X			
18. If disappointed in a race try harder next time		X		

Table 27 (Continued)

Psychological Characteristics Concerning the Activity
Behaviors of Male Canadian National Swimmers N = 91
Categorized by Performance Ranks

Activity Behaviors	Failed Swim N = 15	Qualifiers N=35	Consolation Finalists N=24	Finalists N=17
19. If beaten in a race that expected to win are not disappointed	X	X		
20. Good judge of how competition is going		X	X	
21. Cannot be upset by distractions at swim meets		X		
22. Know how to get "up" before a race so that will perform best	X			X
23. Cannot be distracted before a race to the point where it will affect performance		X		
24. Some form of mental rehearsal is used before a race		X	X	
25. Can maintain concentration on approaching race through warm-up		X		X
26. On the blocks concentrate on moving fast and diving far		X		X
27. On the start concentrate on listening for the gun		X		
28. Prefer to swim own race and regulate own pace			X	
29. If fall behind still make the race a test to do best time and effort		X	X	
30. Use information gained from one race to modify and plan the next one	X	X	X	X

Table 28

Psychological Characteristics Concerning the Moti-
vational Events of Male Canadian National Swimmers
Categorized by Performance Ranks

Motivational Events	Finalists N=17	Consolation Finalists N=24	Qualifiers N = 35	Failed Swim N = 15
<u>Training</u>				
1. Like the coach to comment favourably on training and performance	X	X	X	X
2. Like training programs with a lot of variety	X	X	X	X
3. Having training times improve	X	X	X	X
4. Like to swim butterfly in training and competition		X		X
5. Like to swim breast stroke in training and competition	X			X
6. Like to swim back stroke in training and competition	X	X	X	X
7. Like to swim free style in training and competition	X	X	X	X
8. Would be prepared to train for many years if it meant becoming an Olympic champion	X	X	X	X
9. The coach commenting frequently on techniques	X	X	X	X
10. Not being rewarded with candy or small surprise things		X	X	X
11. Not getting patches or badges for training, attendance etc.	X	X	X	X
12. Like to train each session with the intent of seeing how far can drive self		X		
13. Not having training more easy than hard		X	X	X
14. Swimmers at training being cooperative	X	X	X	X
<u>Competition</u>				
15. Qualifying for at least one final in each meet	X	X	X	X
16. Standing on the victory stand after races	X	X	X	X
17. Improving in all events not just specialty	X	X	X	X

Table 28 (Continued)

Psychological Characteristics Concerning the Motivational Events of Male Canadian National Swimmers
Categorized by Performance Ranks

Motivational Events	Finalists N=17	Consolation Finalists N=24	Qualifiers N=35	Failed Swim N=15
18. Placing in races frequently	X	X	X	X
19. Qualifying for national championships	X		X	X
20. Setting own goals for times to be swum in meets		X	X	X
21. Competing in races to see if improved			X	X
22. The more important the race the more enjoyable it is	X			
23. Race time improvements motivate to train more and harder	X	X	X	X
24. Becoming a national champion	X	X	X	X
<u>General</u>				
25. Getting information on swimming	X	X		
26. Establishing records	X	X	X	X
27. Being selected for a national team	X	X	X	X
28. Being able to travel	X	X	X	X
29. Friends outside swimming being interested in their swimming	X			X
30. Having name appear in media	X		X	X
31. Other swimmers being friends	X	X	X	X
32. Like parents to approve of efforts in swimming	X	X	X	X
33. Like other swimmers to notice his/her swimming and talk to him/her about it	X			X
34. Swimming all four competitive strokes				X
35. Being selected on a club team	X	X	X	X
36. Having name placed on a record board where all can see it			X	
37. Knowing improvements in all facets of swimming	X	X		X
38. Being able to set own ultimate goals for the sport		X	X	X

Discussion

Past National Ranks

In these analyses a limited number of attitudes and activities were attributed to the medalists and event winners. These swimmers said they were always able to follow their original intentions in swimming and indicated they didn't dream about swimming. The only other area where they indicated distinct features was on competition activity. They utilized mental rehearsal before competing and along with the finalists were able to concentrate on the gun before a race.

Those who had only achieved qualifying times or who had never qualified showed some unique information. These groups didn't feel their coach was always reasonable. In competition the least experienced group felt they knew how to motivate themselves and how to recover from a disappointing race. They preferred competition to training but desired information on all aspects of swimming.

In this analysis, the major point of interest was that those with the highest level of performance history indicated the most knowledge of their competition activities. The lower performance ranks seemed less sure of their racing habits. All competitors would benefit from using a planned approach to their racing endeavours.

Present Performance Rank--Female

These analyses indicated that the finalists and consolation finalists at the nationals studied showed several distinct behaviors. In each table these two groups had some distinct features where the others had very little that differentiated them. The finalists were reluctant to become involved in swim team projects and social events. They indicated some dedicated attitudes to training. They were not forgetful of details in swimming and would not miss training. The finalists and consolation finalists felt they would devote as much time as needed to their sport. In actual competition, the finalists did not worry a great deal over their race effort and felt they could handle disappointing results. Goals were an important motivational event for the finalists and the consolation finalists. These females wanted to set their own goals in competition and also to ultimately establish their goals in swimming.

The swimmers who achieved only qualifying times or failed swims had only a few distinct responses. Socially, they were upset if others had a poor opinion of them and the failed swim group hesitated in criticizing others. These groups became nervous and tense before competition and concentrated mainly on listening for the gun at the start. They competed primarily to see if they had improved.

This analysis reaffirmed that the top performance ranks had more detailed race strategies. This group of top

ranked female swimmers also showed a special dedication to training. They were not concerned with swimming's social events but did emphasize establishing their own goals.

Present Performance Rank--Male

In these analyses the male swimmers who achieved top ranks indicated several unique responses. Most of the distinct features of the top-ranked men were directly opposite to the female finalists. This group was not embarrassed when made the centre of attention on their swim team and enjoyed participation in the projects of their team. The finalists also indicated that they felt superior to other swimmers in some attributes. These males felt they excelled in competition rather than training but were ready to modify their technique in training. They enjoyed important races. The male finalists and consolation finalists indicated they would rather not set their race goals or their ultimate goals in swimming. The less successful male swimmers, qualifiers, and failed swims, were competing primarily to see if they had improved. Unlike their female counterparts these males were not upset or nervous in competitive situations.

The different attitude to goal setting by the top ranked male and female swimmers was evident. They also differed in the social role they desired in swimming. Differences between the sexes might be confirmed by this. The males were confident and gregarious and did not want to make major

swimming decisions alone. The females were less out-going socially and tended to plan and execute their swimming decisions on their own.

Chapter 8

SUMMARY

This study examined the behavioral responses of swimmers and their relationship to selected performance classifications. The behaviors examined were those indicated on the Psychological Inventories for Competitive Swimmers.

Swimmers at the 1977 Winter National Swimming Championships were the subjects. The study utilized the completed inventories of 176 athletes. Inventories were administered at the testing center during the period of the championships. Data on each of the athlete's achievements were also collected. After the data were key-punched and analyzed by computer, results were sent to the coaches. It was hoped that this would serve as an incentive for future participation in similar studies.

Performance categories were developed after the championships had concluded. The categories indicated various levels of performance in the specific competition as well as examining the history and achievements of the various swimmers. Each category was divided into divisions which examined the full range of variation. Seven

performance categories were chosen after the competition. Three categories examined the history and past achievements of the swimmers. The age and sex of the swimmers, their years of participation and their past performance ranks were examined. Four additional categories were related to the performances at the national championships. The males and females were examined separately. The performance ranks of the swimmers and their performance times were utilized for these analyses.

Actual relationships between the behavioral responses and performance categories were examined. Only extreme responses on a 3-point scale were considered as important information. Several additional criteria were used to signify noticeable characteristics. The divisions had to contain 60% or greater responses in an extreme response alternative for that alternative to be considered a common characteristic of the divisions. If one division contained 60% or greater responses in one extreme response alternative, that alternative was deemed a characteristic of that group. This information on the behavioral responses and performance categories was organized into tables. A summary of the tables and their possible implications was provided.

Conclusions

The information obtained in this study has provided a description of various behaviors indicated by Canadian National swimmers. The results have shown that some analyses provide a clearer description of these athletes than others. Since the study used a large sample of swimmers and examined them during their competition, the validity of the study was increased. The methodology used provided a detailed description of the specific behaviors of these swimmers. These behaviors are indicated here, with suggestions on how they might be utilized by coaches.

- 1) Male and female swimmers exhibited different behaviors in several situations. In training the sexes exhibited fairly common behaviors. However, in competition and in social situations, there were some important differences. The males were more at ease in social situations and more confident in competition. These findings indicated that coaches should provide different experiences for the sexes in social and competition situations. Efforts to minimize the nervousness of some of the females would be appropriate. The males could be encouraged to use their confidence in a prudent manner in the actual competition.
- 2) Male and female swimmers when divided by age exhibited few distinctive behaviors. This finding would indicate to coaches that national swimmers of different ages do

not require vastly different treatment.

- 3) The swimmers indicated several important differences in behavior based on the number of years they had been participating in swimming. The new comers to swimming exhibited a great dedication to training regimes and a desire to learn more about their sport. The more experienced swimmers indicated a definite preference for competition over training and were quite sure of what they wanted to experience in swimming situations. These findings would suggest that coaches examine how long their athletes have been involved in the sport. Behaviors would be better understood and more appropriate experiences could be provided in training and competition. The newer swimmers might require more detailed competition plans as well as information on all aspects of their sport. The more experienced athlete could be provided with experiences to maintain the same zest for training that is shown for competition.

These findings also refute several popular statements on swimming. The first statement is that swimming training is monotonous and too time consuming. The enthusiastic attitude of these athletes towards their training shows the weaknesses in this argument. The other statement is that competition is a negative and unhealthy experience. This study showed that as the athletes developed in swimming they liked competition more and valued the most important competitive

situations highly.

- 4) Another analysis which indicated differences in behaviours was concerned with performance times. The swimmers who showed a high level of improvement responded differently to those who showed marked decreases in performance levels. Minimal differences were shown based on performance ranks, past or present. These findings would indicate that athletes who are improving or not improving have more in common than those who presently share a certain level of performance. Female athletes who registered significant improvements exhibited an individual and carefully planned approach to swimming, especially competition. The athletes who did not improve seemed distracted by the social situations in competition. The coach might ensure a higher level of improvement for all these swimmers by using detailed mental rehearsal and written race plans. These methods would assist the athletes in focussing on the competition. The male swimmers who exhibited improved performances also had distinctive behaviors. They enjoyed rigorous training and were very committed to their training program. They also showed a planned approach to competition. Coaches could provide similar competition experiences for the males as was suggested for the females. In addition, higher levels of improvement might be achieved by emphasizing the importance of high levels of performance in training and providing challenging training programs.

The three analyses discussed indicate the highest relationships between behavioral responses and certain performance categories. In addition, several responses were exhibited by virtually all groups. Coaches should attempt to foster a variety of these behaviors and attitudes in swimmers who hope to perform at a national level.

- 5) In social situations, the swimmers desired stable friendships. The coach should attempt to foster friendships within their group. The athletes also enjoyed a close and trusting relationship with their coaches. Coaches should ensure that they have developed this rapport with their athletes. In addition parents were admired for their role in swimming. The coach should always ensure that a satisfactory level of communication exists between the swimmer, their parents and the coach.
- 6) Various attitudes were also evident in all the groups examined. Swimming was considered their most important activity and they were always striving for better performances. If athletes do not show this commitment and enthusiasm towards their sport, the coach should examine the program to determine if it is properly fostering these attitudes.
- 7) In the swimming environment, the swimmers specified some behaviors as being particularly important. The swimmers wanted to train with at least one other swimmer. They also followed training programs closely.

This would suggest that coaches do not individualize their programs completely but ensure that the athletes always work in groups, of varying size. The programs should be quite highly structured so the swimmers are aware of what is expected from them.

- 8) There were many motivational events indicated by virtually all groups. In training, they wanted frequent comments from their coach. They also desired variety in their training which included swimming all four strokes. Coaches should provide a varied program to the athletes and communicate frequently with the swimmers. These events served to motivate the swimmers much more than material rewards and incentives. In competition, the swimmers again emphasized that they didn't want to specialize completely in one event. They wanted to compete in several events and place in a variety of them as well. The coach should encourage development in all events in a swimmer's progression to the national level. The swimmers also desired to achieve high levels of achievements. They wanted to become national champions as well as representatives of their country at international events including the Olympics. The coach should make all levels of swimmers aware of these possibilities in swimming and encourage an ambitious approach towards achieving them.

Coaches have been provided with the content of strategies for dealing with specific categories of

athletes. They have also been provided with factors to consider in the social, attitudinal, activity, and motivational behaviors of competitive swimmers.

Recommendations

- 1) The study should be replicated at future national championships using a larger percentage of the population. In particular more participation by athletes in the higher performance ranks would be beneficial. Different incentives might be used to achieve this.
- 2) Similar studies should test all athletes either before or after their performances. Although this might create organizational problems, all the athletes would participate at the same point in the competition. This would decrease the possibility that their performance would affect their responses.
- 3) A study should be done with a lower level of performer. Swimmers at a provincial championships could be examined in a similar manner and similarities and differences between the two levels noted.
- 4) Psychological testing should occur regularly at the swimming national championships. Testing has now been introduced to this population of swimmers and coaches, therefore future studies would probably be more readily accepted.

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APPENDICES

APPENDIX A

Preliminary Letter to Coaches

Dear Coach:

At the forthcoming Winter National Swimming Championships a research project will be conducted prior to their commencement and during them. The project involves the psychological testing of swimmers. It is supported and endorsed by the CASA.

The success of this project depends upon the cooperation that can be obtained from the attending coaches and swimmers. It is desirable that all attending swimmers be tested. Several incentives have been provided to increase participation. Swimmers who are tested will receive a T-shirt. Coaches who allow their swimmers to be tested will receive a full analysis of each individual's test results, a service which normally costs \$10 per person. The information obtained from this project will help the coach, the swimmer, and the CASA.

A testing session lasts from 1½ to 2 hours. A testing centre will be located at the competition site two days before the events commence, and during the meet. Your swimmers would be tested at your convenience as the testing will be responsive to your requests for scheduling. It is hoped that you will be able to find time for this testing in the free time prior to the commencement of the meet, after your swimmers have completed their racing schedule, or when your swimmers have a free day.

The results of this project will benefit all of us who are involved in swimming. Your cooperation will affect the degree of benefit.

Should you have any questions, I hope that you will not hesitate to inquire. Otherwise, I hope that you will find it convenient to participate in this project.

Sincerely,

BSR/kp

Brent S. Rushall, Ph.D.
Professor

APPENDIX B

Meet Promotion for Swimmers

SWIMMERS - WANT A FREE T-SHIRT?

HOW WOULD YOU LIKE TO GET THE MOST SOUGHT-AFTER T-SHIRT IN THE SPORTING WORLD?

THIS IS WHAT YOU HAVE TO DO.

AT THESE CHAMPIONSHIPS THERE IS A TESTING CENTRE CONDUCTING RESEARCH.

THIS IS ENDORSED BY THE CANADIAN AMATEUR SWIMMING ASSOCIATION. ALL YOU HAVE TO DO IS COMPLETE SOME PSYCHOLOGICAL TESTS WHICH TAKE FROM 1 TO 2 HOURS.

DO THEM WHEN YOU WANT - BEFORE THE MEET STARTS, BETWEEN HEATS AND FINALS, AFTER YOU HAVE COMPLETED YOUR EVENTS, WHEN YOU HAVE A FREE DAY. ASK YOUR COACH WHEN YOU CAN DO THE TESTS.

WHEN YOU FINISH YOU WILL GET THE GREATEST T-SHIRT EVER PRODUCED TO COMMEMORATE SUCH AN EVENT.

GO TO THE CENTRE OR ASK FOR:

MR. DAVID FRY

MR. RANDY FOX

DR. BRENT RUSHALL

COACHES

Meet Promotion for Coaches

AT THESE CHAMPIONSHIPS THERE IS A TESTING CENTRE CONDUCTING PSYCHOLOGICAL RESEARCH. THIS PROJECT IS ENDORSED BY THE CANADIAN AMATEUR SWIMMING ASSOCIATION.

PLEASE SCHEDULE YOUR SWIMMERS TO BE TESTED PRIOR TO THE START OF THE MEET, BETWEEN HEATS AND FINALS, AFTER THEY HAVE COMPLETED THEIR EVENTS, OR WHEN THEY HAVE A FREE DAY. TESTING WILL BE DONE AT YOUR SWIMMERS' CONVENIENCE
- - - AT ANY TIME!

THE COACH OF EVERY SWIMMER TESTED WILL RECEIVE A FULL, FREE COMPUTER ANALYSIS OF THE SWIMMERS MOTIVATIONS, GOALS, PREPARATION AND RACE BEHAVIORS, SOCIAL BEHAVIORS AND ATTITUDES, PLUS MUCH MORE. NORMALLY, SUCH AN ANALYSIS COSTS \$10 BUT FOR YOUR COOPERATION IT WOULD BE FREE. IF YOU HAVE ANY FURTHER QUESTIONS VISIT THE TESTING ROOM OR ASK FOR:

MR. DAVID FRY

MR. RANDY FOX

DR. BRENT RUSHALL

Address: _____ **Coaches' Name:** _____

Sex: Male Female

Age: (in years)

Experience: (check highest achievement in an individual event before you qualified for this meet)

- a) event winner at national championships
- b) medalist (2nd or 3rd) at national championships
- c) finalist at national championships
- d) consolation finalist at national championships
- e) qualified and attended national championships
- f) qualified but did not attend national championships
- g) did not qualify for national championships

How many years have you been swimming competitively?

1-2 3-5 6-8 more than 8

How many National Championships have you competed in including this one?

1st 2nd 3rd 4th more than 4

Have you had any injury or illness recently which you feel might affect your performance in this meet?

Yes	No	If yes, Please specify
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Events: (for Winter Nationals) indicate the events you will be competing in and your best time in the event. Be honest and accurate.

Competing In: Best Time:

[illegible]

APPENDIX E

Post-Test Letter to Coaches

April 1, 1977

Dear Coach:

Enclosed you will find the results of the psychological inventories completed by your swimmers at the Winter National Championships in Montreal last week. The response by coaches at the meet was excellent. The results should assist all those involved in competitive swimming to better understand their athletes.

We greatly appreciate your participation in the project.

Yours truly,

David Fry.

Randy Fox.

Brent Rushall.